

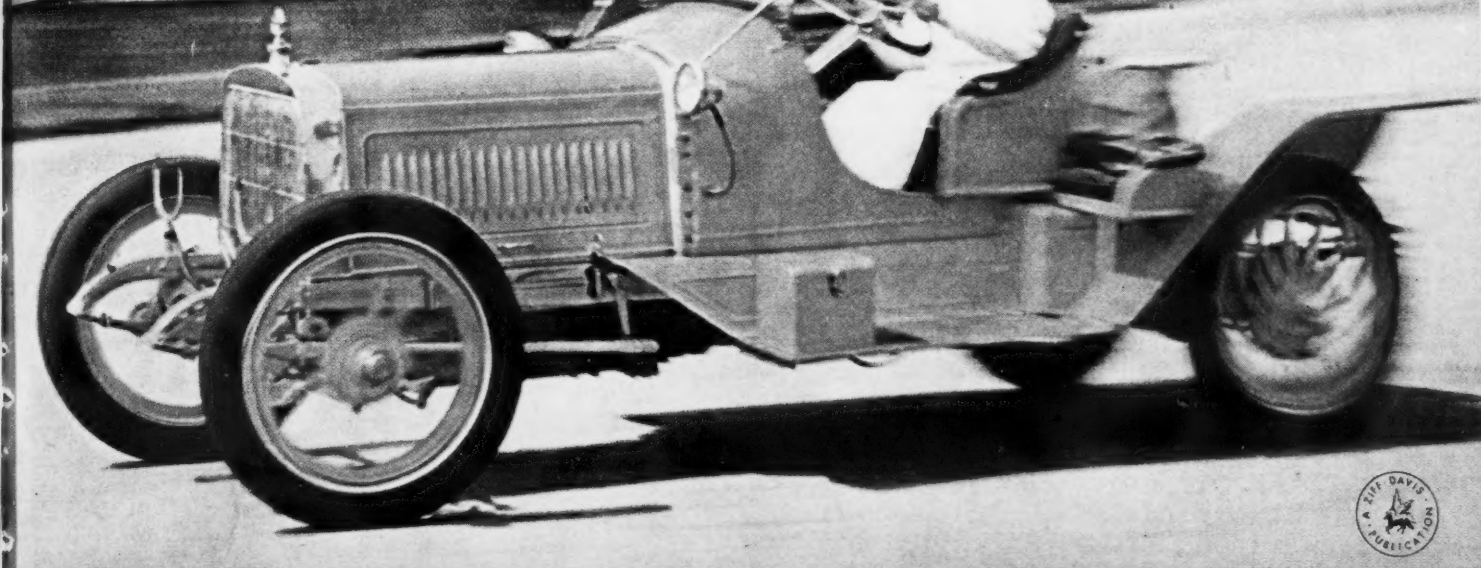
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design • economy • competition



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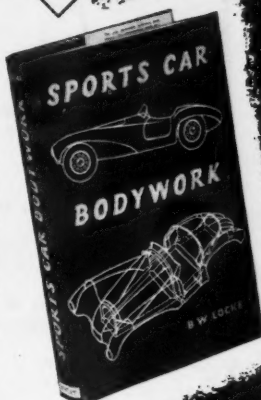
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# SPORTS CARS ILLUSTRATED

design • economy • competition

July 1960  
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Three very different cars grace our front cover this month. At the top is a Lozier doing what comes naturally — racing. Next is a Lark convertible, and below that is Dean Moon's Moonbeam. All three have something in common: they're Americans in action.

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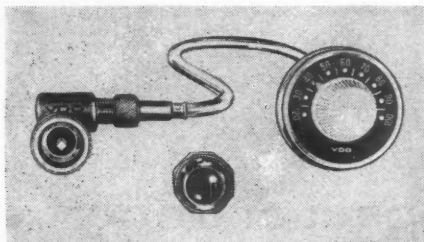
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4/SPORTS CARS ILLUSTRATED/JULY 1960

# OBSERVATION AND OPINION

**NOW FOR THE NEXT FIVE**—This issue of SCI is of special significance to us, marking the beginning of the second five years of **SPORTS CARS ILLUSTRATED**. To acknowledge this we've tried to assemble a strong package of the kinds of stories that we think you'll enjoy, at the same time angling the contents toward the country that SCI consistently covers better than any other motor sporting magazine: America. Here are some of the highlights:

In a frankly nostalgic mood, Ken Purdy reminisces about the wacky world of motor sport in a delightful excerpt from his new book: **WONDERFUL WORLD OF THE AUTOMOBILE**. You'll see sports cars and the people involved with them in a fascinating new light on pages 30 and 31. For more of the same be sure to buy Ken's book, which contains some pieces reprinted from SCI and other magazines, plus much new material that makes some powerful points about highway safety. It offers an effective alliance of entertainment and education that most drivers should find provocative.

Regular SCI readers will realize that Griff Borgeson is *the* authority on the historical and technical development of the native American racing car. Now that the great front-drive Millers are again accessible for restoration and examination, Griff has begun a detailed study of their design. The second installment of "Project Time Machine" in this issue examines the chassis, an absolutely superb piece of work—as you will see. Equally superb, as usual, is C. O. LaTourette's cutaway of the great "91". We wish that we could have completed the technical study of this machine in this issue but there just wasn't room for the kind of job that these cars deserve.

Featured both on the cover and on pages 36 and 37, the Lozier may well lay claim to being the first real sports car anywhere—let alone in America. Without ever building a special racing model, Lozier represented our home industry more than ably in the racing decade before the first world war. Even today a well-preserved Lozier is a spectacular performer.

During the opening phases of the compact car sales battle, the Corvair hasn't performed in keeping with its remarkable specifications. To find out why, SCI subjected a number of recent production examples to the rigors of the Road Research Report. The conclusions show that the Corvair may actually be more of a success in the overall G.M. picture than is the Falcon in Ford's field. Now that Summer's here, also, the Corvair will be a cooler car to ride in and will be getting better mileage than it did in the Winter, while the gasoline-fed heater was in operation. It may well be the "sleeper" of the new trio for these reasons. But Summer should be a real boon to the sales of Studebaker's new Lark Convertible, road-tested in this issue.

**LIKELY IN THE NEXT TEN**—We've postponed our discussion of the technique of the NSU-Wankel engine, promised last month, to bring you a driver's report on one of the Prinzes experimentally equipped with this powerplant. Based on this fascinating experience, and on adequate additional information, SCI reaches this conclusion about this engine: even in its present state of development, without further work on seals and oil consumption, its unique characteristics make it useful for certain specific applications. As the seals and other details are refined, its circle of utility will widen, probably to include automotive production installations. This much seems certain: if any rotary-type engine is ever to be a success, it must be one based on Wankel's patents and discoveries.

**ACCELERATION GRAPHS**—An explanation is long overdue of our change in policy on the presentation of acceleration data in Road Tests and Road Research Reports—a change that went into effect with our February, 1960 issue. One aspect of car testing has always been a source of concern to us: even outwardly identical cars of a given make and type can have performances on the road that are very different indeed, thanks to factors like tune, balance, mileage covered, and the many other variables that afflict automobiles. Since, then, the figures obtained on a given example—no matter how accurately recorded—can only be general approximations of typical performance, we've chosen to omit numerical listings of acceleration times in favor of a consistent graph which cannot, intentionally, be read much closer than the nearest fifth of a second. Being consistent for all cars, these graphs are directly comparable to each other, which is, of course, the basic justification for the testing of automobiles. Judging by your reactions thus far, you agree that this is a sensible change, but we'll be glad to hear any cases to the contrary.

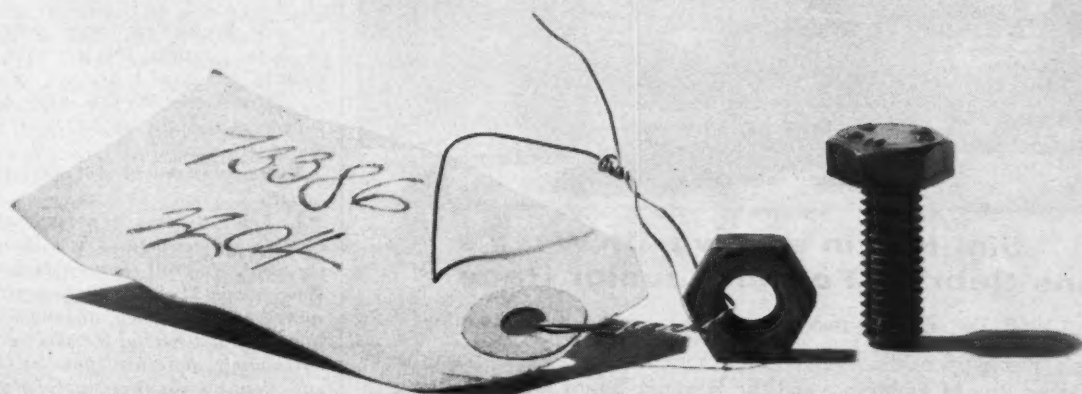
—Karl E. Ludvigsen



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wins 12-hour Grand Prix of Endurance**



**Jim Hall in an Elva-DKW  
wins Sebring Formula Junior Race**

Sebring 1960. Two races — two winners — one make of tire. Dunlop.

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6/SPORTS CARS ILLUSTRATED/JULY 1960

## LETTERS

### CENTROMAT

In my capacity as a Military Analyst, it is imperative that I investigate new ideas in the transport vehicle field. The April issue of *SPORTS CARS ILLUSTRATED*, page 38, describes an incredible vehicle called the "Centrifugat". I would like to know the following:

1. Does Dr. Fritz Wrinkle exist? If so where can I locate him?
2. What or who is A. W. A.?
3. Have you seen this car in operation? Was it actually built?
4. Can the law of gravity actually be repealed as you state?
5. Is the North American Project Newton actually involved in this concept?
6. Is the diagram of the "Centromat" an exact working version now in a vehicle?

M. Gosis

Military Research Analyst  
Conventional Weapons Division  
Ordnance Technical Intelligence Agency  
United States Army  
Arlington, Va.

A copy of the above letter was sent to Dr. Wrinkle for comment. The following is his reply:

Lieber Herr Gosis!

It is good to see that there are keen-minded people in the United States of America. Your line of questioning indicates that you have grasped the basic theory behind the Centromat power plant.

I will attempt to answer your questions in order, within the confines of plant security and good taste.

1. Herr Gosis! We live in age of cynicism. Where would the world be if everybody doubted?

2. Abwehrkannonen Werke Aktiengesellschaft.

3. I myself bear the scars of the first Centrifugat accident. I was demonstrating the vehicle's cross-country performance to Werner von Muscles — famous all-American rocket expert — when, through a fault in the hydraulic system, the skis were lowered. Fortunately there was snow on the ground, and the co-ordination and balance I had learned as a youth on the slopes of the Austrian Alps came back to me. After a few parallel turns and a sparkling telemark I managed to bring the Centrifugat to a halt.

4. Look what happened to your Volstead Act!

5. No, no Herr Gosis, Northair — not North American.

6. This is a difficult question to answer. The model illustrated worked but we are not exactly sure why due to the fact that we were never able to find it after the test run. This has been corrected.

If you plan to be in New York City on June 31st please be a guest of A. W. A. at its demonstration of the Centrifugat in Rockefeller Plaza.

Dr. Fritz Wrinkle  
A. W. A.  
Vienna, Austria



#### BRUCE'S SIDE

Though I felt that Dennis May's article on myself (March, 1960) was pretty accurate, I feel compelled to put to rights an injustice that has slipped into the opening paragraphs betwixt Surbiton and New York.

During my first year of European racing, Ian Burgess of the Cooper Car Company arranged entries, transported my F.2 car and shepherded me in general through each and every continental meeting (and believe me I needed shepherding; ever heard of "Innocents Abroad"?). When things looked black — i.e. no entry — it was always Ian who would say "Well, come along anyway. You'll probably get a start", and such was the case at the Nürburgring. So I think the basis of that opening paragraph is clear, though its implications are wide of the mark.

I am glad to have this opportunity to congratulate you on producing such a fine motor-racing magazine.

Bruce McLaren

The Cooper Car Co. Ltd.  
Surbiton, England

#### ROAD TEST REFINEMENTS

I have always felt that your Road Tests were based more on the writer's personal likes and dislikes than on facts and figures, and in support of this feeling I refer you to tests in the December, 1959 and February, 1960 issues. In the December issue on page 51 you list the transmission ratios of the BMW 507 as 3.39, 2.07, 1.36 and 1.00, and on the same page we read, "The ratios are nicely spaced and we understand this gearbox is identical to that in the Maserati 3500GT tested in SCI, November, 1958." And in the February, 1960 issue on page 64 you list the transmission ratios of the Fiat 1200TV as 3.38, 2.09, 1.38 and 1.00, with these words on page 95, "Top and third gear ratios are nicely planned and spaced, but second is a long way below third, very close to first. In effect the 1200TV has an all-synchro three-speed transmission with an auxiliary gear to prevent excessive clutch slip while starting."

With the almost identical gear ratios listed above, will you please explain why one car is praised while the other is degraded? Could it be that the one praised lists at \$10,500 and the one degraded at \$2,812?

Friel T. Vance  
Plumtree, N.C.

Your point is an excellent one, superbly taken. But we think we have at least one leg to stand on. First, our road tests are very definitely based on the likes and dislikes of the magazine staff, taken as a whole. They're based on performance on the road, not merely on a study of the specifications involved. If we'd started with the specs alone in the case of the BMW, we probably would have branded its ratios as unsuitable also. But on the highway the 507's supremely smooth, potent V8 delivers so much torque in so many places that gear ratios are not so critical. Also, its higher final drive ratio (3.70 against 4.30) makes its first gear a more useful road cog than the Fiat's, which is strictly for starting. Naturally the 1200TV's much lower power makes it much more sensitive to imperfection in ratio selection. In other words, you don't notice poor gear ratios — either in testing or in ownership — unless you need them!

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# DETROIT NEWSLETTER

by Mike Davis

## SALES REPORT

The industry is backing down a bit from its blue-skies estimates of production and sales for 1960—except where the compacts are concerned. Nevertheless, it is expected that all domestic makes will sell more cars in 1960 than in 1959. It will be a good but not spectacular year for Detroit.

Leading off the compact car race are Falcon and Rambler, practically wheel-to-wheel. Following, in order, are Corvair, Valiant and Lark.

That line-up can hardly be considered a popularity contest, though. For one thing, it's awfully early in the model year. We would look for Valiant to move up very fast as output rises from Detroit, St. Louis and Newark factories. Corvair was affected by production loss during the steel strike, limited selection of models, and widely circulated rumors of bugs.

The Rambler-Falcon race is harder to account for. Falcon has also suffered from a shortage of models—station wagons didn't get into production until mid-February and something over 40 per cent of American Motors sales are in this body style. But Falcon also had novelty on its side, and many, many strong dealers.

## IMPORTS VS. DETROIT

Share of the market sold by imports declined when the new U.S. compacts came on the market—but this could be attributed to seasonal factors. Detroit is eyeing carefully the expanded model line-ups and advertising schedules of the imports. We think the main question to be answered is whether import dealers will stoop to price warring now that prices of U.S. compacts are being discounted severely.

## ECONOMY

We've heard criticisms directed at Ford, Chevy and Chrysler for claiming better mileage for their compacts than is generally being delivered in average use. There are several considerations.

For one thing, automatic transmissions, with which a large proportion of the new compacts have been equipped, generally reduce mileage about two miles per gallon. For another, most usage so far has been in winter months, when gas mileage is always lower. Corvair got a double penalty on this count with its gasoline heater.

The important consideration, it seems to us—and the one which the auto companies have stressed all along—is that economy is substantially better than in the conventional U.S. car (equipped with V8 and automatic transmission) at no sacrifice in comfort or space and some advance in handling ease.

For instance, we noted that a Valiant—out of tune, incidentally—driven several hundred miles, got exactly one-third more miles to the gallon than did similar driving with a five-year-old Plymouth V8.

## VALIANT ALTERNATIVE

In the way of post-mortems, we recently learned that the power plant which vied right up to the last with the "oriental six" for the Valiant was a V6. Some tests, in fact, were run with Lancia engines mounted in Opels!

Two considerations apparently ruled out the V6 in favor of the slant six. One was height—styling decreed a long, low front end rather than the stubby, high space of a 60-degree V6. The other was tooling and manufacturing cost. Tools from the old Plymouth L-head 6 could be reworked for the "oriental."

## TSK, TSK—WHAT IT SAID!

Naming a new car model is no longer the simple task of applying the inventor's or manufacturer's name. Today, Madison Avenue teams up with an electronic computer, programmed to produce every possible combination of four, five, six or seven letters in the English alphabet.

In addition to the expected gibberish this produces, a marvelous and all-encompassing vocabulary of obscenities evolves. One auto company assigned an engineer to stand by the electronic brain and cull out all the objectionable words before the lists were passed through more delicate hands.

But the machine also invented a lot of new ones which could be appropriately applied in public without the usual censure. That's why you hear strange expletives in certain quarters of the Motor City these days.

## ANOTHER CONTENDER

The latest word on engine blocks in Detroit is not aluminum, but magnesium.

General Motors is known to be stepping up development work as a result of a price deal recently tendered by Dow Chemical Co., which has something over 90 per cent of the nation's magnesium capacity.

Another factor in the increased interest is the development of an alternate source for magnesium with the start-up recently of Alabama Metallurgical Co.

## GEAR DUST

For you summer, Southern or Western drivers, air conditioning is now available in both Valiant and Comet. The Valiant unit, made by Chrysler's Airtemp Division, can be installed by dealers.

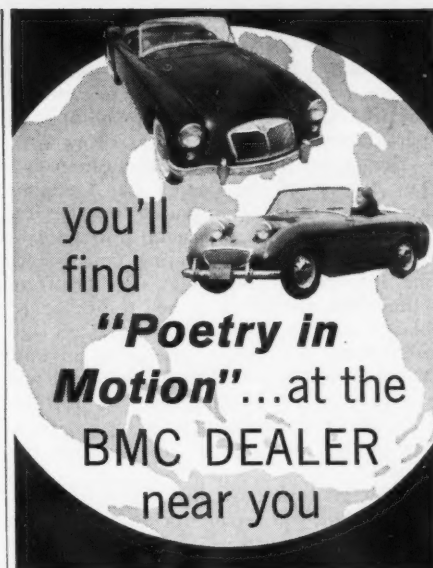
Airtemp claims the "Cool-Aire" unit for the Valiant (or any other recent Chrysler product) can cool a car on a 110-degree day within seven minutes.

Air conditioning—which provides humidity and dust control as well as cooling—is being installed on about 44 per cent of 1960 Chrysler Imperials, probably the highest rate in the industry.

Has the Rolls-Royce long been the apple of your eye and the Valhalla of your driveway, but you just don't have 18 grand kicking around loose? Sure R-R advertises that some banks will give you five-year terms, but it still doesn't seem quite right.

An outfit in Chicago has come up with the solution. Cars For Commerce, Inc., will lease you a Silver Cloud for a "modest \$442.50 per month."

—M D



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Swenson-Marusic Buick, Granite City  
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Eagleson Olds-Cadillac Co., Olney  
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Lou's Imported Motors, Logansport  
Frick Motors, Inc., Michigan City  
Dutch Hurst Motors, Muncie  
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Grieger Motor Sales, Valparaiso  
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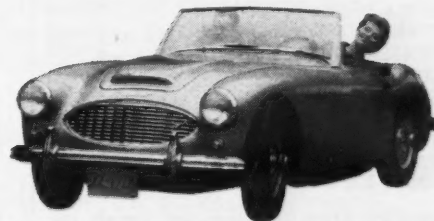


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# EUROPEAN NEWSLETTER

## MUTTERINGS FROM MODENA

On the very day that the Sebring sports car race was being run in Florida, Scuderia Ferrari was at Monza testing its 1960 Formula 1 cars in preparation for the Monaco Grand Prix in May. Cliff Allison and Wolfgang von Trips had been summoned from their homes to Italy to give their assistance in deciding exactly what car would be right for Monaco.

Three different chassis were parked in front of the pits when we arrived. Two cars looked almost identical, the third markedly different. The two similar machines were of the Buenos Aires type with bulging side tanks, but each car had a different wheelbase and one of them was equipped with the 1960 version of the Dino V6 double-overhead-camshaft power unit. The third car was actually the Formula 2 chassis (216 cm wheelbase—84.9 inches) that von Trips had used to win the F. 2 Syracuse G. P. on the previous weekend, but now it too had been fitted with a full 2.5-liter powerplant of the latest type. This 1960 Dino engine has been altered to give more horsepower lower down with a few less on the top end, a change the drivers had asked for at the end of the 1959 season after finding themselves unable to out-accelerate the Cooper-Climax. Power now comes in hard just above 4000 rpm and tails off at 8000. Acceleration out of slow corners is noticeably improved and with the new wishbone rear suspension on the Ferrari, the drivers are confident that they have a world-beater.

## DRAG RACES

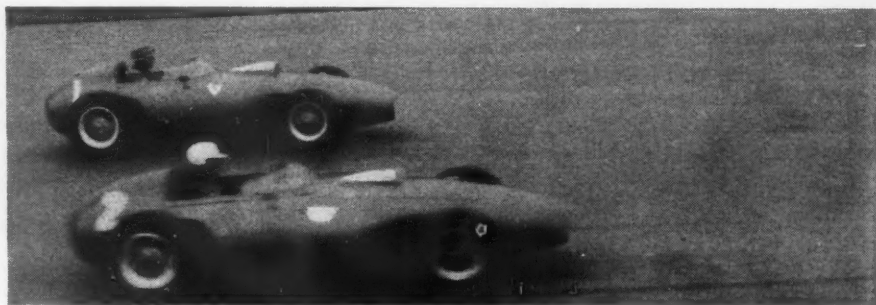
The testing program on the day we visited Monza included a series of rolling starts between the two Buenos Aires cars — one of them a 222 cm (86.6-inch) wheelbase, the other 232 cm (91.2-inch). They would come around the South Curve together, slowly at about 3500 rpm, running side-by-side till they reached team manager Tavoni who, as they passed, dropped a flag signalling both drivers to put their feet down hard. Every time, the car with the 1960 engine surged ahead noticeably and when it reached the end of the mile-and-a-half straight the gap was a matter of several hundred yards.

But the performance of the 216 cm wheelbase car with its reduced frontal area and lighter weight was astonishing. Weighing just over 500 kilograms (1102 pounds) it will presumably be the Scuderia's major weapon for Monaco. Differences between it and the larger cars are slight but important. The chassis is not quite so massive—the fuel tanks do not protrude from the side of the car as much — and its ultra-short wheelbase in company with the new rear suspension gives it very favorable handling characteristics. The car looks compact and small, and for Monaco would be fitted with larger Dunlop disc brakes. If the drivers have their way, the short-wheelbase car will indeed be the one for Monaco.

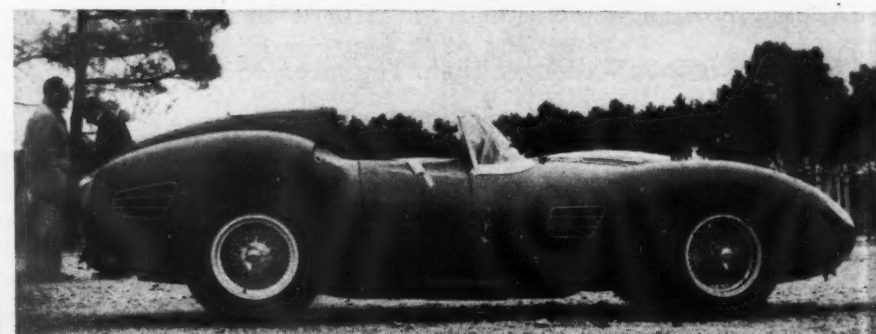
## SPORTS FERRARIS

As expected, Ferrari has developed a new factory sports car for 1960. The wishbone rear suspension of the Formula cars has been fitted to a shorter and lighter sports car chassis and not only does the car look small, it IS small — a powerful weapon for Sicily and Nürburg. Engine mountings allow the installation of both single and double-overhead-camshaft V6 engines as well as the V12!

In spite of the fact that Enzo Ferrari has built a new sports car for 1960, we (Continued on page 12)



Rolling start test at Monza (above) saw the Ferrari single seater with the 1960 engine surge ahead. The 1960 sports car that Ferrari will field (below) has a lighter, shorter chassis.







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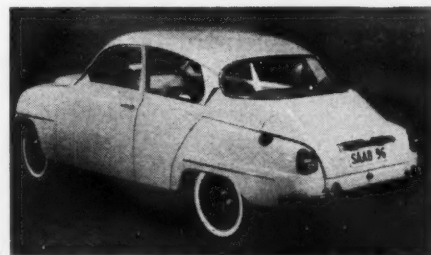
12/SPORTS CARS ILLUSTRATED/JULY 1960

(Continued from page 10)

feel it is safe to say that he would be just as happy if he did not have to race sports cars. A car that is used in — at the most — six races, and then sold to a selected private customer for use the following year, costs too much to develop and operate for actual value returned. A team of Formula cars can be entered in a minimum of twelve races each year, races which offer substantial starting as well as prize money. The point is this: a racing sports car is a specialized vehicle requiring much more time and effort to prepare than a Formula car — in relation to the use it gets. Sports car racing does not pay and Ferrari would much prefer to sell more Berlinettas to private clients and perhaps retain special versions for the Scuderia's use. Ferrari's recent refusal to send a team of sports cars to Sebring only confirms his unwillingness to participate in an already most unprofitable venture. The failure to obtain satisfaction with regard to the fuel problem at Sebring was the final straw.



F.2 Ferrari for '60 has wishbone rear suspension.



Saab 96 has bigger rear window and side vents.

### NEW FROM SWEDEN

New from Saab is the model 96 with a hopped-up engine and styling changes including a larger rear window. The familiar three-cylinder two-stroke, used in the well-known 93, has been bored out by 93 cc for a total displacement of 841 cc. The 66 mm bore has been boosted to 70 mm while the stroke remains unchanged.

Power output was set at 38 hp (D.I.N.) at 4,250 rpm, five over the 93's maximum. The four-speed gearbox, up to now available only on the station wagon, in which the 841 cc engine is already seeing use, will be an option on the 96. The three-cog unit is standard.

Something Saab owners have been wishing for for a long time is the larger (117 percent greater glass area) rear window. Coupled with a modified roof line, the car not only appears more spacious but is. It's claimed the sturdy Swede can now haul five adults without discomfort. Other changes include a restyled dashboard, a larger fuel tank and new taillight and license plate light designs.

—JLA





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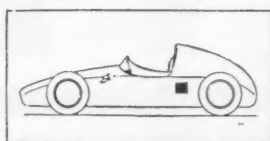
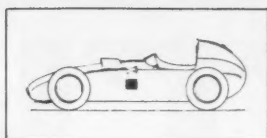
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## PIPELINE



### VIVA HUMAN BEINGS!

The Sebring wing ding just passed was scored by a very elaborate IBM computing system called RAMAC, which stands for Random Access Method of Accounting and Control. It did our old black heart good to learn that Official Timer Joe Lane and his myriad of human helpers had the results 30 minutes before RAMAC clacked out the answers. The electronic results were probably more accurate, but not half as much fun to come by, we'll bet. The years certainly do whistle by. Wouldn't it have been something if first Sebring winner Bob Deshon had been lap-scored by RAMAC? The computer would have been larger than his harried Crosley Hot Shot.



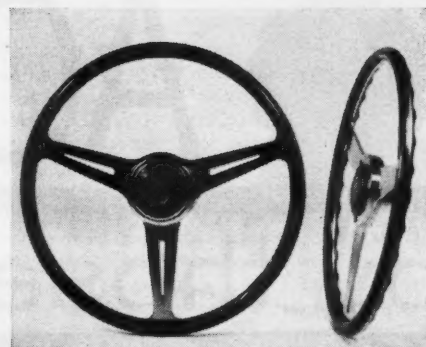
### NEW RALLY AID

Light spilling onto the windshield and into drivers' eyes has been a headache to night rallyists for years. Solutions have included rigging shields or using low-power bulbs.

The Glar-Ban Corp. however has introduced a new illuminated clip board with prism-controlled light pattern. It spreads light from a lamp . . . made to aircraft specifications . . . over the clip board . . . and no where else. The lapsize board has a smooth writing surface and the clip keeps maps and papers from falling to the floor. It lists at \$5.95, plus 50-cents for handling and postage and is available from Glar-Ban Corp., Dept. SCI, 3,807 Harlem Rd., Buffalo 15, N.Y.

### BIGGER BEETLE?

According to United Press International Volkswagen has a large and more expensive model in the planning stage.



### WELL DONE WHEEL

A new steering wheel that has both tactile and eye appeal is now being offered by Mauro Engineering. The spider and hub are made of sturdy aircraft aluminum alloy, buffed to a mirror-like surface. Deep finger serrations are so conveniently spaced they make the Mauro wheel a pleasure to grip. Built to fit MG's, Austin-Healeys, Sprites, and VW's at \$55. For \$60 owners of Mercedes-Benz 190SL's or 300SL's, Corvettes, Porsches, Jaguar XK 150's, or Alfa 1300's can steer in style. Write Dept. SCI, Mauro Engineering, Box 46933, Hollywood 46, Cal.



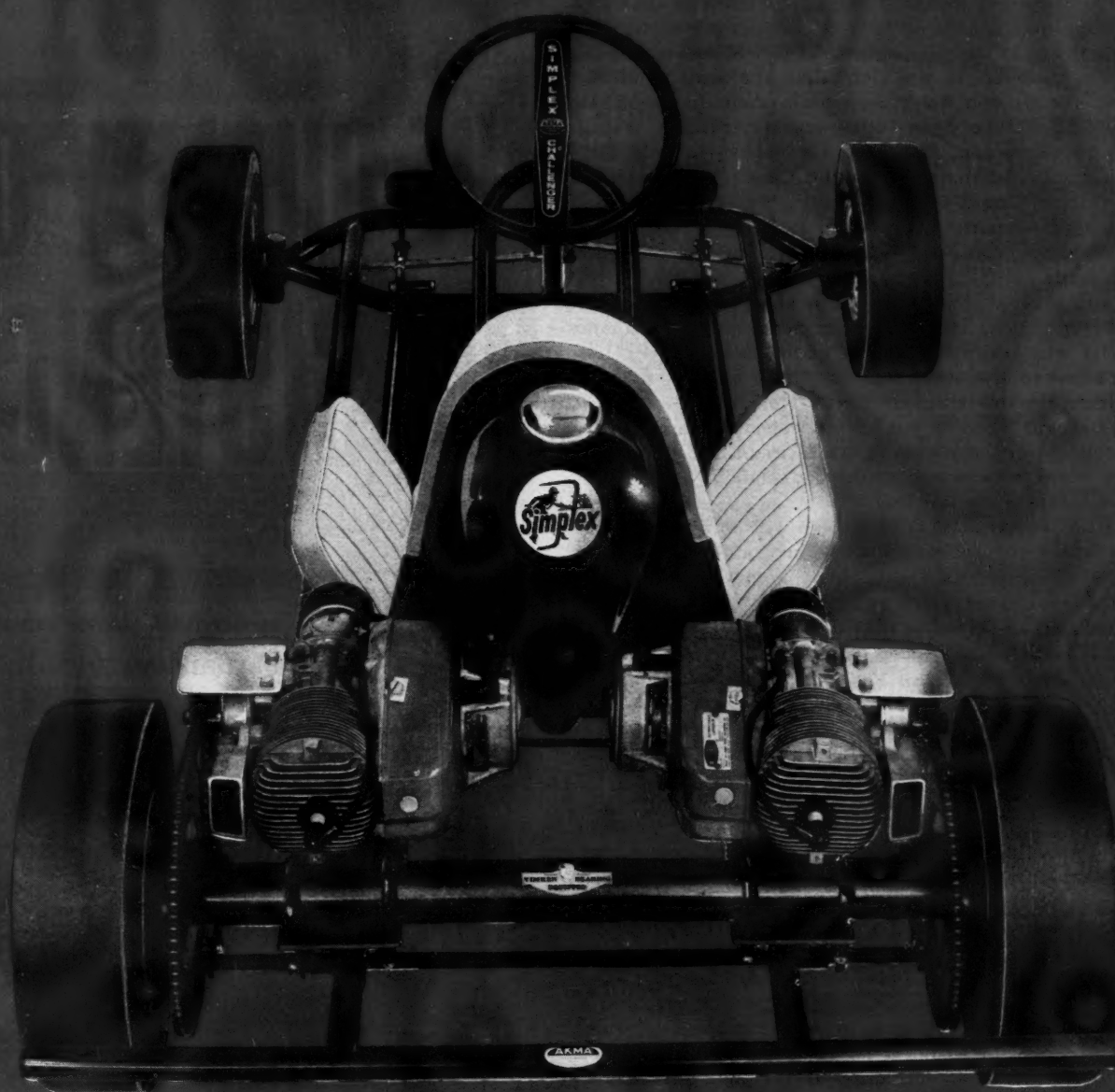
### FOR THE HOME MECHANIC

Handy kit for your car's glove compartment contains enough bandages and adhesive tape to cover an average Saturday's worth of back yard tinkering. Send \$3.95 to Cerbini Laboratories, Inc., 68 First Street, New Rochelle, New York.

### MORGANTICS ATTENTION

Published by John Dowdeswell, 62 Brunswick Road, Ealing, London W. 5, England, The Morgan Four Wheeler Workshop Manual will bring aid and comfort to all embattled Morgan owners. This 96-page volume—which looks like a labor of love rather than a serious get-rich publishing scheme—covers all four-wheel Morgans from 1936 to 1960. Included are maintenance instructions on Coventry Climax (1936 version!) Standard Special, Ford 100E, Standard Vanguard, Triumph TR-2 and TR-3 powered versions of this classic sports car. Send 12/6d—if you own a Morgan you probably know that this means \$1.75 in American money—plus postage for your copy. Be a good chap and tell Mr. Dowdeswell that you saw his book mentioned in Pipeline—he may send us a used Morgan air cushion.





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offers 125 new features the combination of  
which is not found on any other Kart in the world

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WE HAVE THE BEST DEALER PLAN IN THE INDUSTRY AND DEALER INQUIRIES ARE INVITED.

► A few years after the first World War, the design and use of pure-bred American and European race cars began to diverge and continued to do so until they became so totally different as to defy reunion. The separation is of such abysmal proportions that most "enthusiasts" never even feel that it is necessary to specify to you what sort of racing they are enthusiastic about. If you don't like the same kind they do, chances are you won't even be in their discussion. Depending on the bias, Shaw, Vukovich, Meyer-Drake, Watson, Firestone, Champion, DuQuoin, Langhorne, the old URA Blue Circuit, Indianapolis and the Championship Trail — or, Nuvolari, Fangio, Cooper, Ferrari, Weber, Girling, Nürburgring, Zandvoort, SCCA club racing and the World Championships constitute meaningful nomenclature. But seldom both.

All this may be changed in the next few years by a man most European race fans have never heard of, an Indianapolis driver who reached the nadir of his then-eight-year-long racing career in 1955 when the only "ride" he could find was with Irish Horan's Original Lucky Hell Drivers, and the zenith last year when he was acknowledged the most successful racing driver the American track circuit has ever seen — Rodger Ward, who won both the Indianapolis 500 and the USAC Championship last year.

Only the second man since 1945 to win both in the same year, Ward also raced — and won — in stock-car, midget-car and road-racing events, earned more money than anybody ever has before in a year of American racing and got off to a good start in defending his title by winning the Trenton (N.J.) 100-miler, first of the 1960 championship races. All of this would be of interest solely to American track-racing fans if Ward weren't also competing regularly this season in USAC's Road-Racing Division and, more to the point, in as many of the 1960 European Grand Prix events as he can fit into his schedule.

In attempting to make this expansion of his racing activities, Ward has faced the same interlocking, major problems that have confronted all others who have tried before him. First, like the European drivers who have brought European road-racing cars with them to race at Indianapolis, and U.S. drivers who enter track cars in road races, he was obviously reluctant to try a new racing milieu and a new type of car simultaneously. Secondly, once he had decided that — despite the advantages of competing on a familiar machine — inherently it made better sense to use a car specifically developed to beat other similar machines in a given type of competition, he found, like others before him, that it was just about as difficult to get a decent sports or G.P.-car ride as it had been to get a good midget back in the days when he was only one of several hundred promising young California midget pilots.

Ward's Lime Rock victory with a midget last August must have made him feel that his choice of car was sound. It is, of course, one of the few American road-racing circuits where such a car has a chance to win. "I'd been up to Lime Rock a year earlier for the first USAC road race with an old 3.5 Alfa Romeo and figured that a properly set up, 'going' midget could do the trick," Ward said recently. "I got hold of a good midget — not an exceptional one, you understand — there are probably 50 others being raced around the country which are just as good as it was — and we got there in plenty of time to practice, try various rear-end ratios and all. We were well prepared and we knew what to expect." Then he grinned and said, "Well, don't tell anybody, but man! I really had to work hard to win that one!"

Soon after Lime Rock, Bob Wilke, owner of the Leader Card Special midget, championship and Indianapolis cars which Ward had victoriously driven in the '59 season, requested a midget entry for Ward in the December Sebring Grand Prize. Both he and Ward apparently felt that if

(Continued overleaf)

# THE QUALITY OF PERSISTENCE

by D. M. Bartley





# racing and sports car accessories



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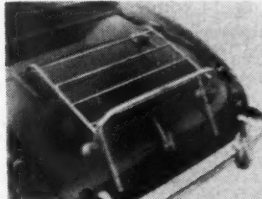


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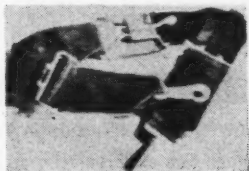
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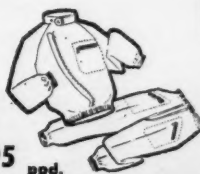
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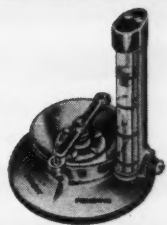


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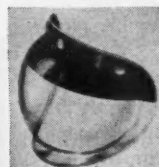


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Specify Smoke or Clear Lenses

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and most leading drivers. Only 1/2 weight of standard wheel with boss to fit column and accommodates present switch assembly. Available for AH, Jaguar, MG-A, TC, TD-TF, TR, AC, Corvette, Porsche, Aston-Martin, Morgan, Sprite, Alfa-Romeo (1300 only). Made in England of Duralumin one-piece frame with contrasting laminations of light African Obechi wood and rich dark Mahogany. Hand French polished, finger serrations on the underside to ensure a firm grip. The smaller (16" dia.) wheel allows ease of handling. (Corvette 17" dia.)

State make, year, model of car.

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DEALERS INQUIRE

(Continued from page 16)

an ordinary midget could beat cars like Constantine's 3.7 Aston Martin, Chuck Daigh's 1958-model F.1 Maserati, Fitch's Cooper Monaco, etc., at Lime Rock, a more drastically modified midget might be able to put up a good show in competition with F.1 cars. Before Ward got a chance to see if this was true, he ran into — you'll excuse the expression — the race-drivers segregation problem. The same sophistic reasoning used by adherents of the "separate-but-equal" color bar resulted in Ward's several requests for a Sebring entry being ignored for many weeks. It was said that no one could imagine what he "could possibly add to the show down here," and finally, only a few weeks before the race, too late to make the planned modifications to the car, the organizers allowed as how he could come if he wanted to all that much.

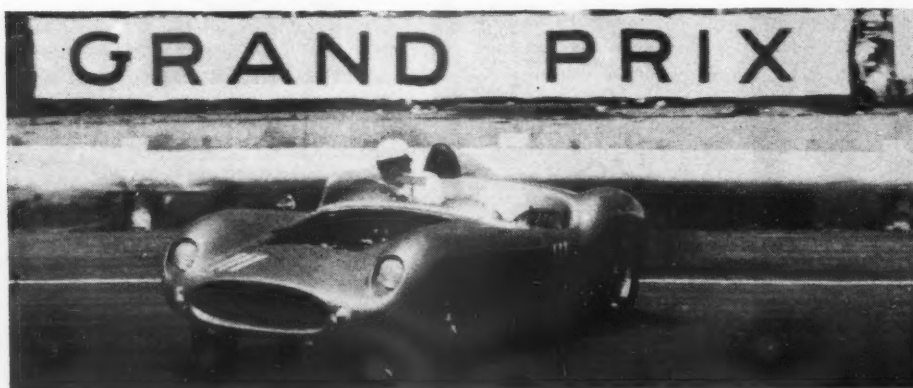
Certainly Ward added nothing in the way of speed to the Florida "show" (though one might justifiably wonder if the meager crowd wouldn't have been even smaller if the Indianapolis champion hadn't been present). His midget was a tortoise amid a whole brace of G.P.-car hares and at that, a tortoise that couldn't go the distance. But Ward says, "Look, while I *knew* both the cars and the drivers were great before I went — I wasn't kidding myself about what I'd find down there — I have to admit I was even more impressed than I expected to be, and it's true that I'm not so sure I would have gone if I'd known exactly how tough the competition was. It was the first Grand Prix race I'd ever been to, and I was amazed at some of the things I saw. The cars were considerably different than I had expected — it just seemed immediately obvious that they handled one whole lot better than the sports cars I'd seen and raced."

So one of the problems was on the way to being solved. Even before the Sebring race day, Ward had decided he wanted to try racing in Europe and was looking for a Formu-

la 1 or 2 car ride. He had to look for a while. Fangio had "public relations" problems at Indianapolis two years ago, at least a part of them caused by the language barrier and his own wrong choice of Indy car, but American car owners did offer him several good machines. European car owners at Sebring, though openly admiring Ward's guts and sportsmanship, were not so impressed with his ability. They offered him exactly nothing. Only one of them was even interested enough to agree somewhat condescendingly that sometime after Christmas Ward could come over to Europe if he wanted to, for a little test to see if he could handle an F.2 car. Ward was willing, but the owner never did get around to saying when, so nothing ever came of that.

The feeling persists in both camps that regardless of a driver's proven ability to race three or four different kinds of cars successfully, he still can't possibly develop yet another kind of racing skill. Of course, a number of very good drivers can't. Not all top-rated sports car pilots can race sedans and/or G.P. cars with equal success, few midget drivers ever come to be first-rate Indianapolis men, etc. But there exist as well drivers who are intrinsically versatile, who can extend their skills enough to do very well indeed in a new kind of racing, sometimes even with totally unsuitable cars — René Dreyfus who, in spite of time lost in misunderstandings about the regulations, placed his Maserati tenth at Indianapolis in 1940, Ascari's superb effort there in 1952 with a non-competitive Ferrari, Chuck Stevenson's two Mexican Road Race victories with a Lincoln in '52 and '53, and Luigi Musso, Moss, the Ecurie Ecosse boys, et al, whose skill and bravery in the Monza 500 events gained the vehement admiration of the Indianapolis men. In any event, Ward found out that despite his 14 tough, sometimes desperate, years of work — racing six and seven nights a week in the midget years, eight abortive tries at Indianapolis and a

(Continued on page 20)



Ward has a little trouble with Al Bowman's Chev-powered Devin SS during practice for the recent L.A. Examiner G.P. at Riverside in California. Rodger seemed pretty much at home in this 3-liter Ferrari (below) during the Cuban Grand Prix. Speed of other cars surprised him during race.







## Marion points out THE A B C's OF SAVING MONEY

Hi, there! Each year at this time it is our custom to take an inventory of the goodies on our shelves and make an especial note of those that are either (a) selling well and, therefore, deserving of wider dissemination (b) getting pretty familiar from long acquaintance. Those under heading (b) have either been overlooked or over priced. We remedy this entire situation by dumping all into a solid type ad. No pix, no clever copy. Just bargains. You must do your part by ordering at once. Play the game, you know, and Save Money.

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 All chrome, removable or permanent ..... \$19.95

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**GRAND PRIX GLOVES** are undiminished favorite over the years. Top quality leather and workmanship makes the difference. Natural cape or black. Sizes 6 1/2-10. .... \$7.95  
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 Handsome, well turned out. Authentic colorful replica of your car's insignia. MG, Jag, Tr, Healey, Porsche.

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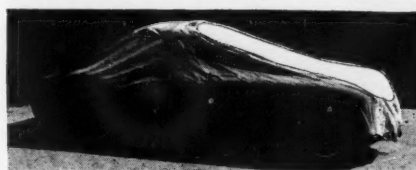
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<input type="checkbox"/> Minx Muff		
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(Continued from page 18)

total of something close to 4,000 races—in the context of European-style racing, he was in approximately the same, hard-on-the-ego position as Fangio at Indianapolis: champion of absolutely nothing.

There is no doubt at all that racing cars has been of prime importance to Ward since long before the day 14 years ago when he stashed his Army Air Force Lieutenant's uniform in the back of the car, took a furtive look around to see if any of the brass from his Texas base were lurking in the unlikely purlieus of the Boondocks-League midget race track at nearby Wichita Falls, Kansas, then climbed with eager trepidation behind the wheel of his first ride, a poor old Willys-engined midget which he had been "allowed" to mechanic for many, many weekends of leave before this day when—finally!—the driver didn't show. But from that time in 1946 until around 1955, the words cocky, arrogant, wild and difficult, were commonly used to describe the quiet, thoughtful man who is today King of American track racing.

Brought up in Los Angeles where his father owned an auto wrecking business and garage, Ward was 14 years old when he proudly finished his first hot rod. It ran surprisingly well, despite a few mistakes. After high school and some work in West Coast aircraft plants, Ward went into service but completed his fighter-pilot training too late in the war to see overseas duty. The aforementioned Wichita Falls racing debut was not auspicious—he spun out and was hit by another car.

When Ward got out of the Army in the summer of 1946, he had a more traditional racing debut, trailing a midget all over the Texas-Kansas border area for a month or so, tired from the long highway hauls between races, broke, ill-equipped but a happy participant in some 15 midget events. When he went completely broke, he went home to L. A., worked for his father, scrounged a handful of rides on Ford-engined midgets and won his first main event in Phoenix late that fall.

For five seasons Ward raced only midgets, each year doing better, but never getting farther from the West Coast than Las Vegas or Phoenix. In 1947 he got his first steady ride in a car owned by Bud Murphy, a TWA pilot who is still a close friend of Ward's. In 1948 Ward continued to race Murphy's Ford-engined car, but also got a steady ride for the top midget races—Lyle Greenman's Offenhauser.

The California midget craze was abating by 1949, when Ward left Greenman to drive a new car designed and built by one of the mechanics he knew. Ward won occasionally, but not often enough. Lack of money forced the owner to withdraw the car from competition after a few months. Ward then drove with much more success for a number of others, including Perry Grimm, another owner/driver and, in Ward's opinion, one of the truly extraordinary race drivers this country has produced. "Perry had a beautiful style on which I was trying to pattern my own long before I ever knew him personally," Ward says.

By August of 1949, Ward had long since

(Continued on page 22)





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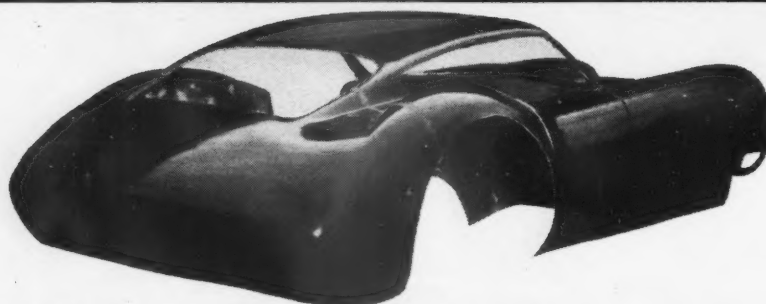


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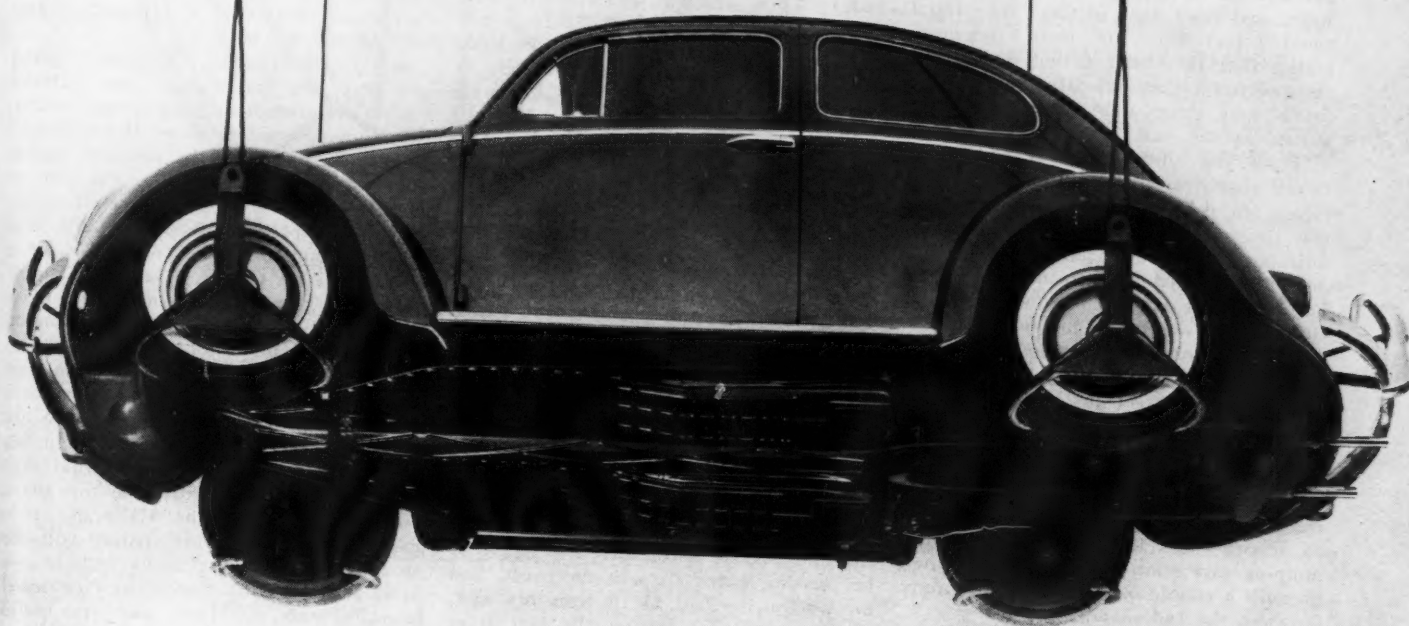
had the Grimm style down pat. Ironically, it was while driving a car owned by Grimm that he had an accident on the last lap of a San Diego race and crashed. "I went on my head so many times I quit counting after the 20th," Ward says, "but that one was the worst in terms of how badly I was injured." Practically every bone in the exposed parts of his body were broken — ribs, shoulders, arms, face, skull — and what wasn't broken was badly cut, abraded or bruised. Besides the initial shock, pain and multitude of convalescent worries after such an accident, the very strong "it can't happen to me" feeling almost all drivers hold is utterly dispelled — a fact which is so demoralizing to many of them that they never race again. Ward never even thought about whether he would race again — only whether he could. Where his right arm connected to his torso there were five main fragments of bone, the rest in smithereens, and it seemed dubious that the best efforts in the world could ever make them heal into anything that could properly be called a shoulder. But four months later, Ward was back at the track, proving that racing can be done effectively with only 20 percent of normal movement in one's right shoulder, which is all he has to this day.

Late in 1949 Ward started driving a fantastically fast Ford-engined midget owned by Vic Edelbrock. "Except for Bob Wilke's operation with the Leader Card cars I'm driving now, that was the best operation I've ever had," Ward says. Edelbrock's wizards were getting between 150 and 160 bhp. from the little beauty — enough to allow Ward to win more races than any other driver by the mid-season point. He finished the year so well that it was his last with the midgets exclusively. They had given him the experience needed to move up to competition with sprint and Indianapolis machinery. In '51 he got his first Indy car. In quick succession, he passed his driver's test, qualified with 6th fastest time, and was doing well in the early laps of the race itself when a severed brake line forced him out. That season he stayed East and got rides in a number of the "Championship Trail" events.

In the next three years the quality of Ward's equipment and the steadiness of his arrangements with owners too often suffered because of his temperament. Ward says, "It was obvious to a lot of perceptive people — not a few of whom told me — that I really envisioned myself as a big shot. But I didn't think I had an inflated opinion of my abilities, so in the spring of '52 I kept waiting around for some owner to offer me what I considered enough 'deal' money to race at Indianapolis that year — and I waited a little too long. As a result the Federal Engineering outfit, an operation which had earlier offered me their best car and an absolutely suitable amount of money, agreed to let me drive their second-best car for no money at all, and by that time I was grateful to get it on those terms." Again Ward managed to qualify and was retired, around the 300-mile point. "I was trying to pass Joe James and went deep into a corner, went for the brakes as late as I thought I dared and found

(Continued on page 24)





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(Continued from page 22)

that I didn't have any. What a thrilling moment that was," Ward says, only half laughing.

In 1955, for his fifth try at Indianapolis, Ward and Ernie Casale persuaded Lyle Greenman to buy the Agajanian Special with which Ruttman had won three years earlier—a good-fortune car for Ruttman but nearly Ward's nemesis. That it had a flaw, Ward, Casale, and Greenman knew; but no amount of tearing down, re-building, and subtle adjusting in the weeks before the race revealed it. That it was a defective weld of the spool which holds the kingpin inside the rear axle they didn't find out until the axle broke during the race, precipitating the four-car accident which Al Keller, Johnny Boyd and Ward, though his car went end-over-end three times, survived uninjured, but which Bill Vukovich, on his way to shading Louis Meyer and Wilbur Shaw in the Speedway history books by making his three "500" victories consecutively, didn't survive at all. Vukovich and Ward were both "loners", both temperamental, both with few good friends, neither of them popularity-contest winners—all of these factors probably being the basis of the warm friendship between them. Ward says, "When I finally got out of the car, pretty dazed, I saw Keller and Boyd, both of them okay, but I couldn't find Billy. And then I began to realize that he hadn't gotten out of the car and, well, that was all. I wasn't sure for a long, long time after whether I wanted to race any more.

"I hit the all-time low of my racing career that year," Ward says. "I'd been racing ten years. I'd been to Indianapolis five times and never even got close to finishing. A week or so after the last accident, Casale fired me, Greenman thought I'd quit, but it didn't really matter because either way I was broke and out of a job. So I went to work for Irish Horan. He had by far the best stunt show in the country, and was such a great guy that even under the circumstances I enjoyed working for him. It wasn't quite the last resort for a race driver—after all, I've been a pretty good painter ever since I worked in aircraft plants in California before I went in service—but it's certainly true that jumping cars ramp to ramp and through firewalls a couple of times a day is pretty far from the Indianapolis 500."

For Ward, 1955 was undoubtedly, as he occasionally says, the bottom of the barrel, and he did the only logical thing to be done from the bottom—started up. In his personal life, the key move was his marriage to a firm-minded, realistic, outspoken Irish Quaker girl named Jo who has a devout belief in God, a penetrating understanding of Ward, a background of several years' work with G-2 Intelligence Service in Japan and several more long years in a tuberculosis sanitarium—all of which had irritated and/or disturbed Ward so much that he hadn't put up any argument when she'd broken their engagement some four years earlier.

The rest of the climb back followed in slow but logical sequence. Ed Walsh, then a track-car owner and subsequently an official of SCCA, hired him on for a couple of late-1955 races—then entered him for

the '56 Indianapolis. For the first time, Ward finished the whole 500 miles, placing a respectable 8th. Walsh had no dirt-track machine, the metamorphosing personality of Ward had not yet progressed far enough to supersede the still-fresh memories of the old-style Ward, so he summoned up a bit more humility and marched himself down to Darlington where he hung around on the chance that someone might not show. That he did this might be one proof Ward could cite to back up his opinion that outright luck isn't a meaningful factor in success. Ward came and Troy Ruttman, who was supposed to drive there, didn't. The fact that Herb Porter let Ward take over Ruttman's car was the third turning point—professionally the most important one. Porter, the mechanic/team manager of the Wolcott Specials for as long as they were raced, is a man that Chris Economaki, authoritative editor of NATIONAL SPEED SPORT NEWS, describes as an "original thinker, a man delighted by the game of outsmarting the opposition in new and different ways, a firm boss and a man capable of enough plain talk to cow almost anybody". Porter convinced Senator Wolcott, a gallantly courteous but very shrewd old gentleman, that Ward, regardless of his past, was a potential champion. They signed him on; Porter was remarkably firm on a few occasions, and Ward remarkably amenable. He still thinks Porter is one of the really few great mechanics. In 1956, the year Jimmy Bryan won his second national championship and USAC replaced the old A.A.A. Contest Board, the Wolcott car was not a dependable contender but Ward placed well enough often enough to be eighth in national point standings—the first time he was ever anywhere close to the top.

Senator Wolcott died in late 1958, and soon after Ward was invited to race for Bob Wilke, owner of a Milwaukee paper company and of the Leader Card Specials for more than 20 years. It was the kind of operation Ward had always hoped some day to be a part of. The designer, builder, mechanic and team manager of Wilke's Indianapolis car was the versatile young Californian, A. J. Watson. Indy machines of his design and manufacture have been top contenders since the mid-'50s; he is considered by many to be the No. 1 Indianapolis mechanic, and he is a quick-witted, astute team manager, calmly capable of getting the best from the driver and crew he directs.

These men and cars constitute a superlative American track-racing team, and finally on such a team, Ward has fulfilled his potential as a race driver. Like most great champions—Bryan, Hanks and Shaw in U. S. track racing, Fangio, Ascari and Brabham in Grand Prix racing—he has tempered his ability to 'tiger' with the useful caniness of maturity. Similarly, by tempering his aggressiveness with a well-balanced self-confidence, a reasonable amount of modesty, and a good deal of consideration, he has become the warmly likeable man that God or the Fates gave him the potential to be.

If Ward has even a moderately good year on the championship circuit, at the end of 1960 he will undoubtedly move into third place in aggregate postwar-racing

points gained by both active and retired drivers, only Bettenhausen and Bryan having significantly more than he does right now. He will also drive his usual gaggle of U. S. midget and stock-car events, race at least a few European F. 1 events with Brabham's car, and will compete in most of USAC's road races with either Bob Wilke's midget which a bit more modification should make eminently suitable for one or two specific road circuits, or with a new Pontiac- or Chevrolet-engined sports car Watson is building for Wilke, or with some other car for which arrangements have not yet been made.

Wilke has yet another project involving Rodger Ward—a new Meyer-Drake-engined, Watson-built G.P. Formula car which, it is hoped, Ward will race often in Europe next year. The new engine will have a four-cylinder layout very similar to that of the 90-cubic-inch (1500 cc) Offenhauser midget but will differ from it in some ways—for example, in having four rather than two valves per cylinder, and five instead of three bearings in the crankshaft. But like the Offy 90, it will have dual overhead cams, a single ignition (Wilke says they found they lost power with twin ignition), Hilborn fuel injection, and though it is expected to rev to 8000 or 8500 like the midget, the G.P. engine will probably be red-lined at 7500 rpm, at which speed it is expected to produce around 165 bhp.

As the new Formula 1 supposedly going into effect the first of next year includes a fairly high minimum weight requirement, the short, compact block of Meyer-Drake's latest powerplant will be cast-iron rather than aluminum and will have cast-iron or alloy sleeves. It is rather like a miniature in cast-iron of the Offenhauser 270, and will be mounted at the front *a la* latest Indianapolis-car practice—laid over almost flat on its side. A seven-inch, multi-plate Borg & Beck clutch will connect the engine to the close-ratio, four-speed Chevrolet transmission for which a new aluminum casing and modifications to eliminate much of the linkage in the shift mechanism are being designed. The ratios of 3rd and 4th will be so close in this gearbox that they will become virtually alternate top gears.

An adaptation of the Halibrand two-speed, quick-change differential will be used. Suspension components include two front and two rear torsion bars mounted laterally with the front and rear solid axles.

Ward knows that whatever progress he is able to make in European racing won't come easy, for the factors operating against him are myriad and the favorable ones meager in number. The former include the almost weekend-for-weekend conflict in American track-racing championship and European Grand Prix events, the same sort of financial loss a virtuoso violinist might expect if he decided to give a cello recital, and, because of the irrationality of the prejudices which surround the situation, the possible loss of prestige here at home is even a consideration. About all Ward's got to balance that is the loan of a good car, innate ability and a splendid pertinacity. It sounds pretty meager, on first thought. But after all, that's just about all he has ever had here. —DMB



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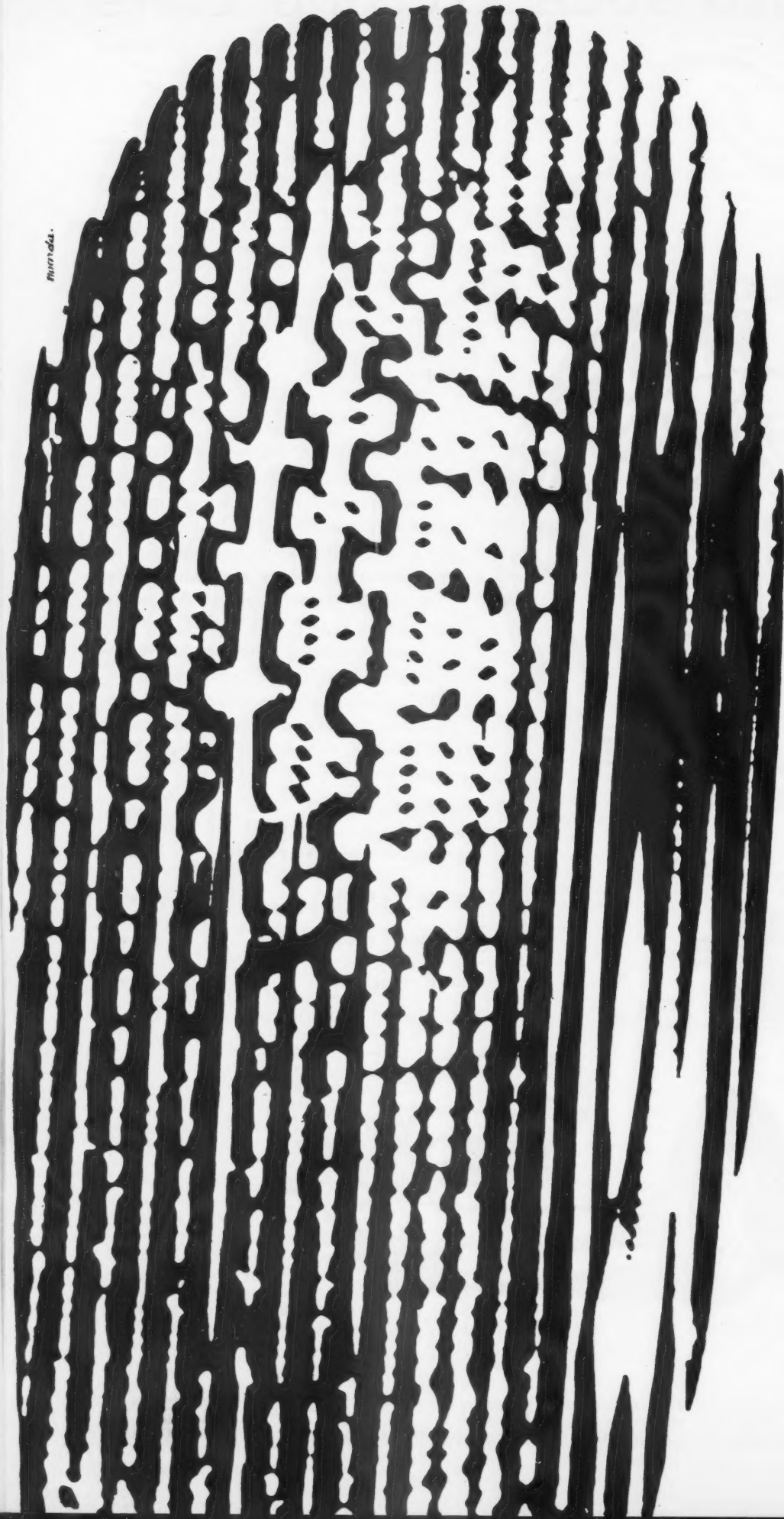
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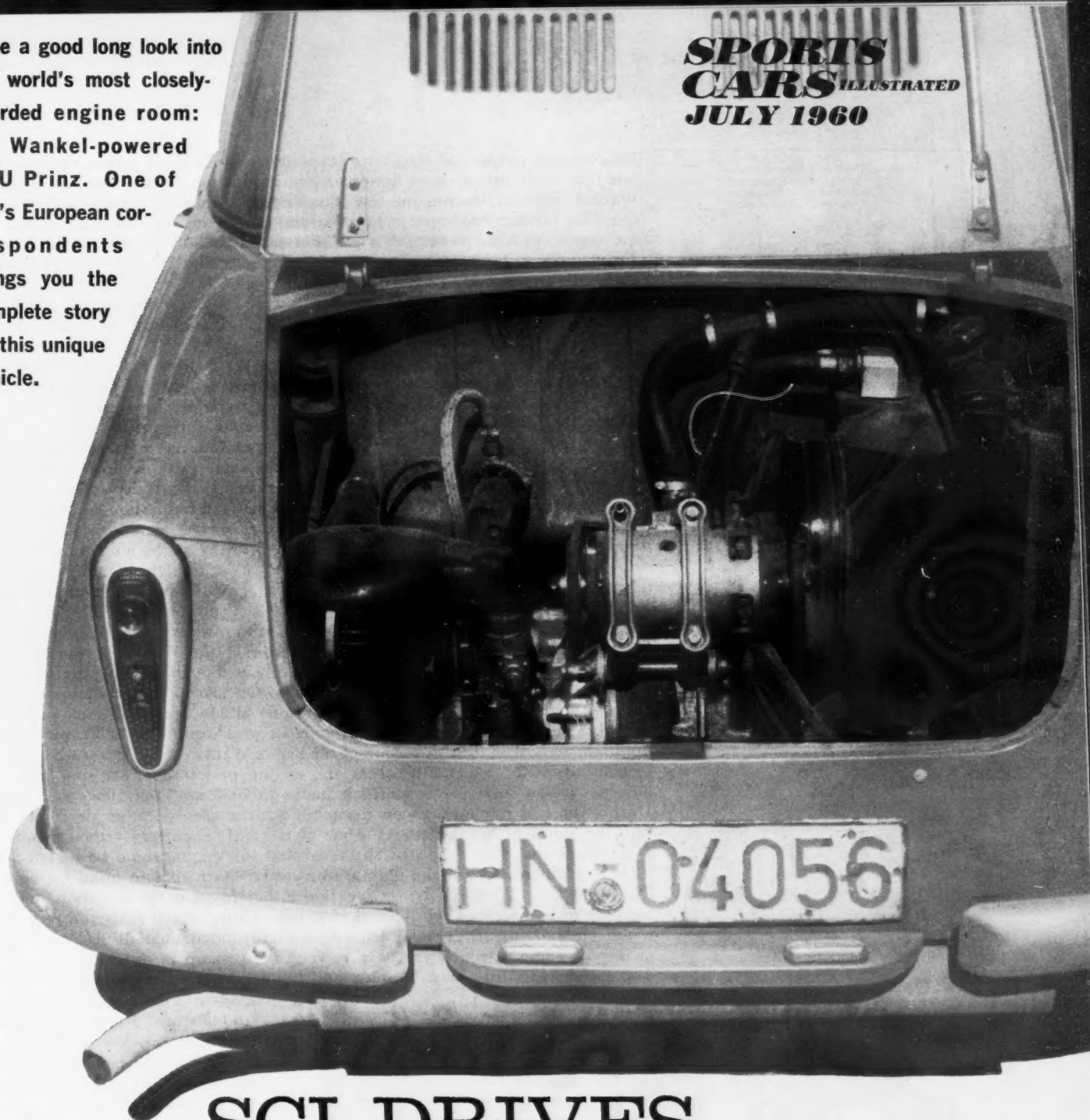
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**SPORTS  
CARS** ILLUSTRATED  
**JULY 1960**



## SCI DRIVES TOMORROW'S CAR

► Recently we drove an automobile that foreshadows the future — an NSU Prinz sedan powered by a 250 cc Wankel engine. This, and another Prinz, are the only two cars in the world propelled by rotor engines. With the exception of additional cooling slots aft of the right rear wheel, they look just like hundreds of other Prinzes that roll off the production line every day. The device that sets these two little cars apart from all others is out of sight under the rear-positioned engine hood. Being German and therefore inherently fastidious, the NSU people were not too happy about lifting that lid to reveal the rough, engineering-test installation of the Wankel in a car that wasn't specifically designed for this type of power. First look into the engine compartment is confusing because it takes a second or two to pick out the barrel-like configuration of the small Wankel engine, hidden under a large generator. At the left is a carburetor and air filter, while on the right is a Fiat 600 radiator and fan, along with a VW oil cooler.

How this technically-inspired power plant found its way into a mobile test bed not specifically designed to take advantage of all its good points is an interesting story. Large companies the world over are as alike as two VW's built on the same day. Directors are always worried about

the cost and purpose of long-range experimentation. They realize the need for it, but they want the seeds to flower on the production lines as quickly as possible. Wankel engines running on test stands were interesting, but would the funds spent for further development be recovered quickly enough? In other words: could the engine provide power for a car that could be sold to the public? The most direct answers the NSU engineering department could provide were two Wankel-powered Prinzes, one of which we test-drove. The two cars — one has gone 16,000 miles and the other 8,700 at this writing — were given a thorough workout by NSU management, and apparently their performance justified continued financial support.

Naturally we were excited about driving a Wankelized Prinz, but some of our enthusiasm was dampened by the almost standard appearance of the test car's interior. Only three additional instruments — electric tach reading from 1000 to 12,000 rpm, oil temperature and water temperature gauges — marked this as something out of the ordinary. Pedals and gearshift lever, activating the cogs in a regular four-speed Prinz box, were exactly the same as those on a standard NSU sedan. Starting is a simple procedure, requiring a slight depression of the gas pedal while turning the key-type starter. The first impression of a Wankel in action is remarkable quietness. A hand held on the dashboard (or even on the quiver-prone roof panel) picks up a very, very slight amount of vibration which doesn't increase as the revs rise. The noise level inside the car is much lower than that commented upon in our test of NSU's piston-engined car in the August '59 SCI. Being air-cooled, with the attendant problems of fan noise, the normal Prinz might not be a fair comparison with a water-cooled Wankel in regard to noise level. Another feature of this version of the Wankel is the absence of flat spots in the carburetion. The linkage feels as though it's been grafted to your right foot; one little jiggle and the revs soar. On takeoff the acceleration is good, but it's immediately apparent that the torque at low rpm isn't equal to that of the normal Prinz engine, which develops its peak torque at 2250 rpm — against approximately 6000 for this version of the 250 cc Wankel.

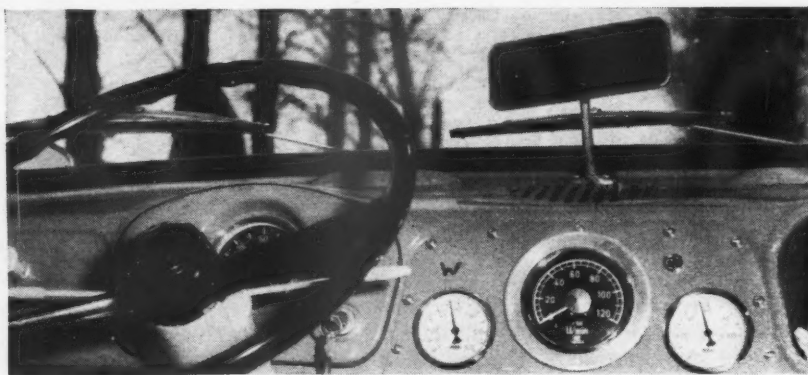
The car really comes alive after the engine passes the 2500 rpm mark (see adjacent power curve), past which it jumps to 7000 rpm and above very quickly. During the first few minutes on the road, the car seemed rather dead. My guide into the world of Wankel power — one of the NSU engineers — stood this as long as he could and then diffidently suggested that this engine could be revved a little higher in the gears than the normal four-stroke. With that in mind we began to have fun. The Wankel — as we mentioned before — has no flat spots and runs right up to its restricted rev limit of 8000 rpm. Using all the gears and revs the car was lively and fun to drive. It felt like a highly-tuned small-displacement sports-racing car — one in which you have to keep the revs up in order to go anywhere. Top speed was a little over 70 mph, and the engine was flexible enough to allow

going down to 13 mph in third gear — equal to 1400 rpm. The engine picked up smoothly from this low speed with just a touch on the gas pedal. However, it was obvious that at this stage of development, this power plant needs the right gear ratios to match its power and torque curves. Using the engine for braking is possible with the rotor engine, though it's less effective than with a four-stroke reciprocating power plant. On the other hand, the Wankel proved a more effective brake than a comparable two-stroke. Fuel consumption worked out to 37 mpg at a constant 50 mph, and 30 mpg at a steady 60.

NSU-Wankel production engines of the future will probably be air-cooled, and will incorporate a greater percentage of light metal in their construction. The resulting reduction in the pound-per-horsepower ratio will also increase performance and will make it possible to use a Wankel engine in a motorcycle — a point obviously important to NSU. Development is also being aimed at increasing torque at the lower end of the power curve.

Our little test car convinced the NSU directors — a group allergic to "pie-in-the-sky" thinking — that the Wankel engine is a solid commercial proposition. At the very least the car was a pleasant-running, economical vehicle — at the most, a harbinger of things to come in the world of wheeled transportation.

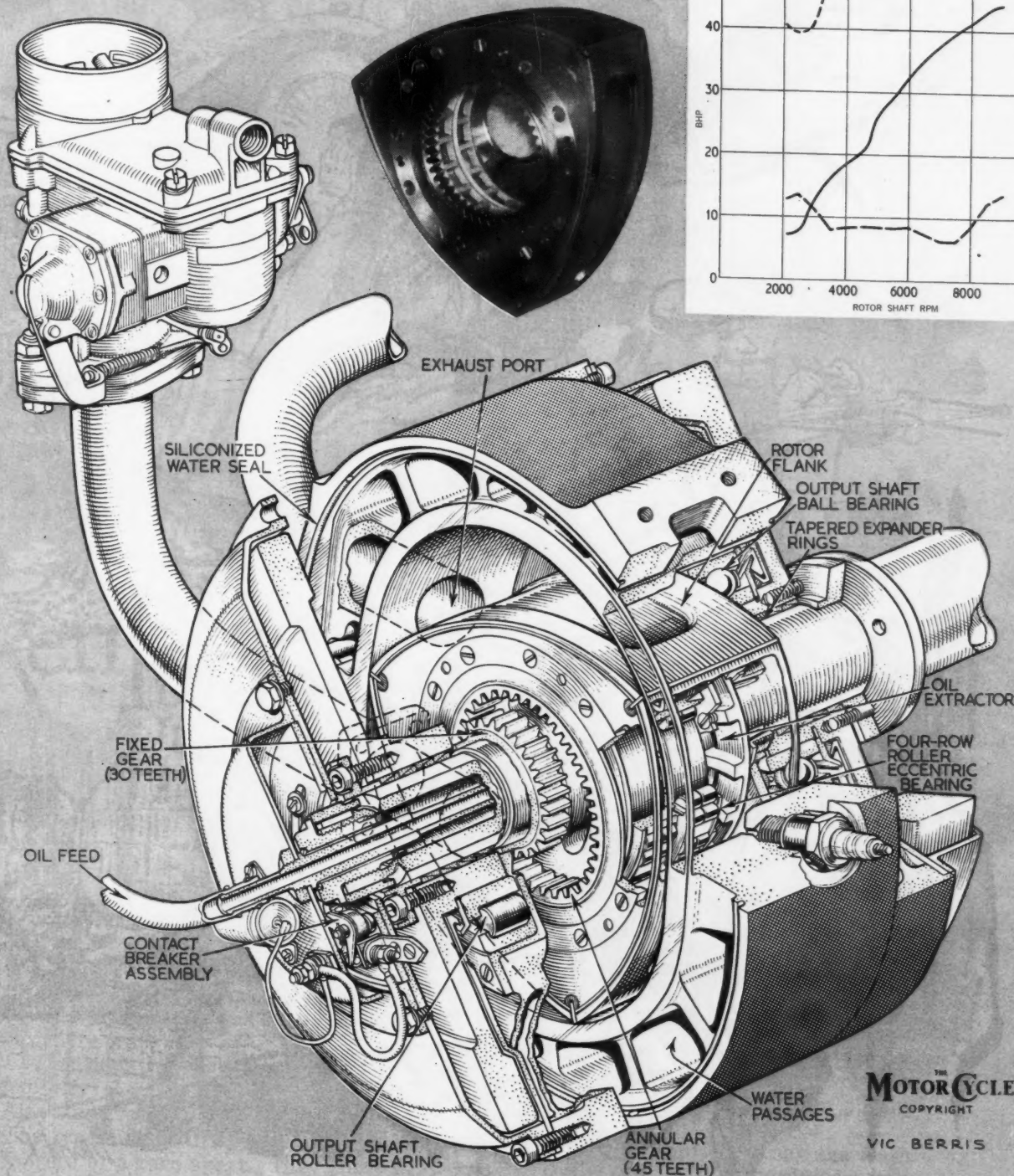
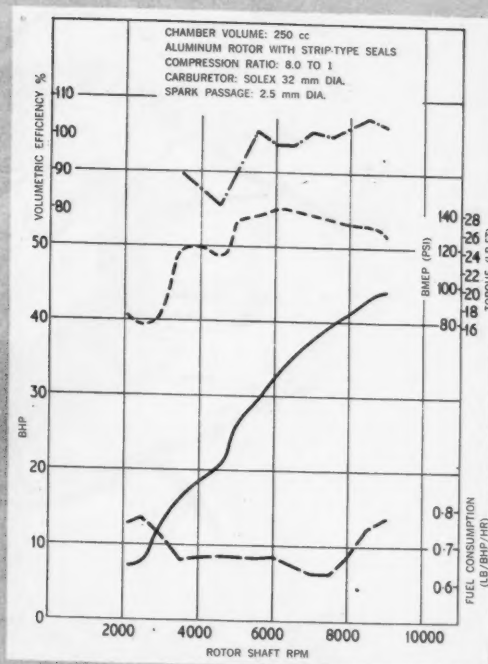
—SCI



Wankel-Prinzes (there are at least two) can be spotted by air vents behind right rear wheel. This is warm air exhaust from ex-Fiat radiator. Instruments are like those of standard German-market Prinz except for electric tach and water and oil temperature gauges.



The cutaway below shows one of the very latest 250 cc test engines, basically like that in the SCI-driven Prinz. Like the exhaust port, its intake port is placed on the periphery of the casing instead of on the side, as we showed in the February, 1960 SCI. This location yields better power at high rpm, at the expense of economy. With a torque peak just above 6000 rpm, the power curve at right is for an engine with a rectangular (18x27 mm) intake port, while the engine below—and the one in the car—registers peak torque at 5500 rpm, by virtue of a smaller (22 mm diameter) round intake port. Also shown is a rotor with the latest-type strip sealing, like that in the cut-away engine.

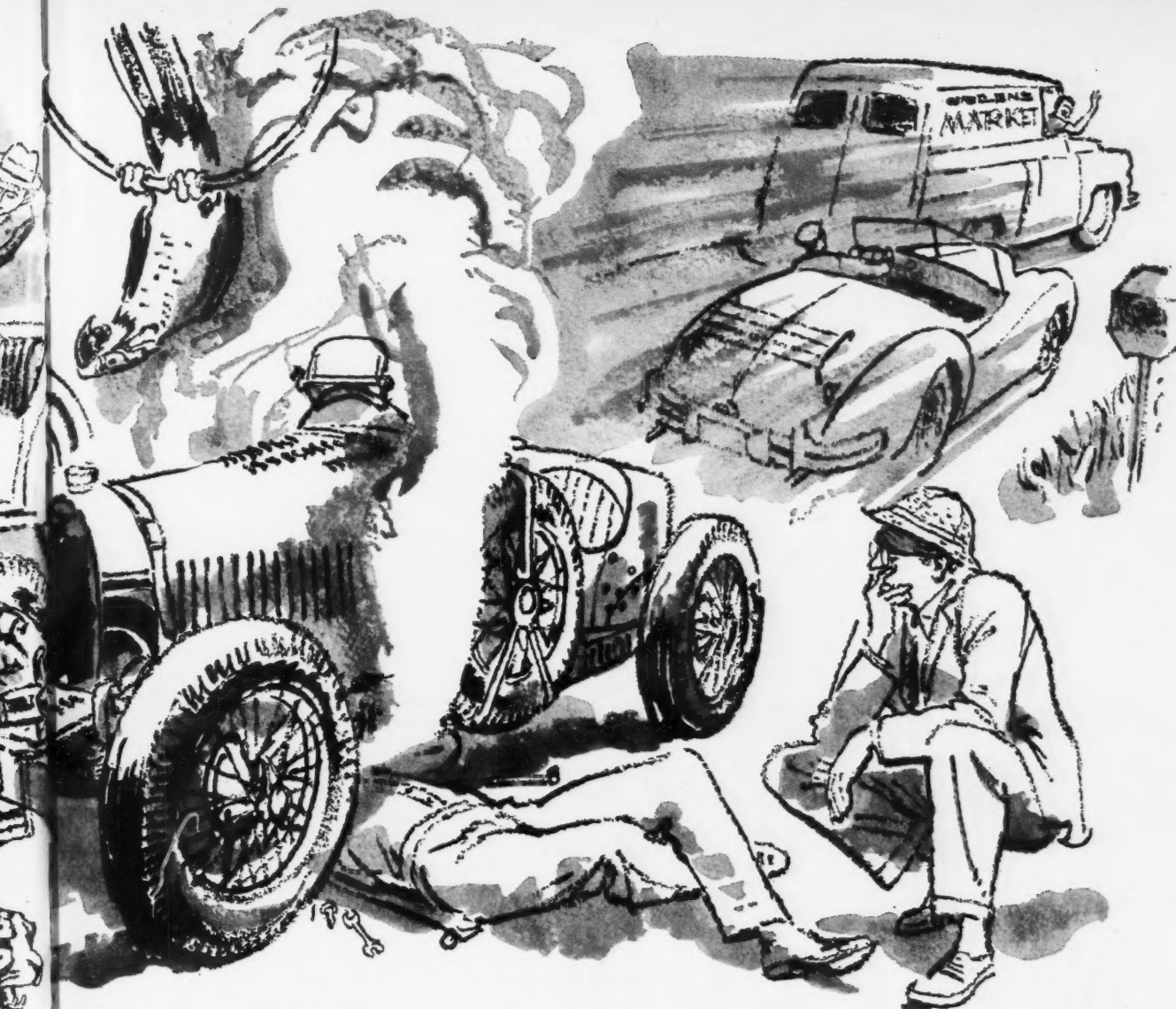


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VIC BERRIS







# Ken Purdy's Wacky World of Motor Sport

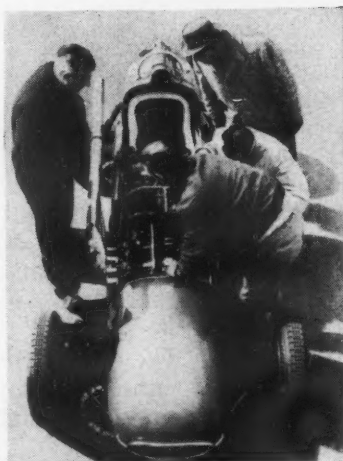
It was in 1936, when I was laboring ten hours a day on the staff of a Massachusetts newspaper for a stipend which would not today tempt a high-school boy to cut a lawn, that I was first exposed to what the British motoring magazines refer to simply as *The Sport*. The publisher of our little gazette, a Harvard graduate of recent vintage, undertook to stage a road race in the town as a promotion device. To this end he summoned from Yale and Harvard, then the twin hubs of what little American road racing there was, a covey or pride of sports car owners. They stormed into town the next week end, driving or towing their exotic machinery. Even the tow cars were extraordinary: I remember an immaculate 12-cylinder boat-tail Auburn roadster pulling an Alfa-Romeo.

The types in the drivers' seats were new to me. They were *sportif*, to say the least. They were of a race apart. They spoke only to each other, and in their native tongue: "I shouldn't turn that over five thou, old boy, the big-ends won't stand up to it." They treated their mounts like new-born children. I remember

(Continued on page 84)

# JUNIORS BLOSSOM IN THE BACK YARD

PHOTOGRAPHY: MENARD



► The first whispers about Formula Junior to reach these shores awakened much interest among builders of specials — a breed of do-it-yourselfer that's present in the U.S. in startling numbers. Since the Juniors went international — and made it worthwhile to build a car here — we've had only one winter for back-yard versions to be concocted. Added to this, more than one skeptic — notably in the Formula 3 ranks — has been heard to grumble, "This talk is all very fine, but it doesn't build cars. Let's see how many American Juniors are around this Summer." We're happy to say that there are a lot, many of them offering real competition to Juniors from abroad.

One of the best is seen in color on the facing page, caught during its shakedown run at Lime Rock Park. Appropriately, it's a blend of American midget practice and contemporary Italian design. Built by a successful stock car builder and driver, "Jocko" Maggiasco of Rhinebeck, New York, it's being driven by Jim Haynes, the SCCA's Formula 3 champion of '59. (Jocko's seen standing to the left of the car in the photo on this page.)

Most components are Fiat but their arrangement is well off the heavily-traveled Stanguellini path. Weber-equipped, the Fiat 1100 engine and gearbox are mounted centrally and linked to the full-width Fiat rear axle by a prop shaft that runs right down the centerline. Front suspension is mostly Fiat, but the lower wishbones are cut just inboard of their outer trunnions and welded to similarly-cut Morris Minor lower control arms. This allows the Minor's torsion bars to be used, as well as its rack-and-pinion steering gear. Midget torsion bars are used at the rear, with very short shackles connecting their operating arms to the axle. Sitting at an angle of about 45°, these shackles provide lateral location of the axle. All four torsion bars run fore-and-aft, and all anchor points are adjustable for chassis tuning. This came in handy at Sebring in March, the car's maiden race, when the chassis was "wedged" to suit the Junior course's many right-hand turns.

The frame's made of two large tubes, 2¼-inches in diameter and .060-inch thick, with body-support superstructure of .030-inch thickness in ¾-inch and 1-inch diameters. The rear radius rods, chromed like a midget's, are 1 by .060 inch. The hub adaptors used to mount 15-inch Borrani wheels on the Fiat axles bring the rear tread to 51¾ inches, fractionally wider than the front tread. Wheelbase is 86½ inches.

Performance of Jocko's machine at Sebring was hampered by standard ratios in the Fiat box, but Jim Haynes was delighted by the power on tap and the car's impeccable handling. It finished the race, which was more than could be said of any other backyard Junior to date.

The first American-built Junior to start (though, alas, not to finish) in an international event made its appearance before  
(Continued overleaf)





Real race  
cars  
assembled  
in America  
will fill  
the  
Formula Junior  
grids  
this season.

the American Grand Prize last December. It was built by James Reardon, of Haverford Sport Motor, Inc., Haverford, Pa., and has tentatively been named the HSM. Reardon was engaged for this task by Ray Heppenstall and Harold Baumann, D-B exponents who were forced by cost and availability considerations to turn to a DKW basis for their Junior.

At the front they mounted a complete VW/Porsche suspension unit, including brakes and wheels. They reduced the tread, moved the steering box to the chassis centerline, fitted an anti-roll bar and reduced the number of leaves in the laminated torsion bars. An entire DKW engine-suspension assembly was installed at the back of the car, producing an engine-ahead-of-axle layout in a most natural way. In the three cars built so far the steerability of the DKW hubs has been frozen by welding.

These suspension units supply cross-bracing for the simple frame, which is based on two rectangular-section cold-rolled steel tubes about 2 1/2 inches wide by 4 inches deep. There are also two bridge-type crossmembers—one a cowl hoop ahead of the cockpit and the other a roll bar behind the spacious seat. These provide support for the distinctively-shaped fiberglass body. The HSM's wheelbase is compact at 75 1/2 inches, especially in relation to the generous treads of 52 and 50 inches front and rear. In its sole Sebring outing Harold Baumann found his car a viceless handler with near-neutral steering.

Engine development is still in progress on a dyno at Villanova University. Reardon's bored one unit to 1080 cc and fitted locally-made 12 to 1 pistons, and has recorded a best-yet dyno reading of 83 bhp. If you can wait three months you can buy an HSM with such an engine for \$4500, or settle for a stock DKW unit for \$3900, if you'd like to file the ports yourself. HSM's address is 519 West Lancaster Avenue, in Haverford.

The Yeovil, a one-off Junior by George Clowes of Chicago, is a fine example of evening-and-weekend enthusiasm implemented by careful planning and shrewd selection of production car elements. It's built around a semi-space frame of seamless Shelby tubing in 3/4-inch and 1 1/2-inch sizes. The intriguing Gothic-arch roll bar (2-inch, 11-gauge tubing) forms the side members of the seat back and is welded to like-sized side members of the seat itself—the whole works being integral with the frame.

All the welding on the Yeovil has been done by Clowes's wife, Allison, and it's the first welding she's tried. Clowes feels that this fact, suitably exploited in the pits with just the right touch of nonchalance, should be the equivalent of another five horsepower in psychological advantage over the competition.

Like some German Juniors the Yeovil will use the flat-four Goliath engine, mounted in the rear. Clowes will carry out all the Tiger (63 bhp) modifications and go beyond to a hoped-for output of 80 bhp at 6500 rpm. Head milling will bring compression ratio from 7.4 to 9.1, and the usual porting will accommodate dual Holley carburetors atop fabricated manifolds. Drive will be through a VW clutch and non-synchro VW gearbox to nearly-stock VW rear suspension.

Topolino Fiat is the source for the steering and the front transverse leaf spring, as well as the radiator and pedals. Front brakes are Al-Fin from a Fiat Multipla, while the rears will be stock VW. A midget-style aluminum body will encase the Yeovil, which is expected to weigh in right at the Formula minimum—880 pounds. Its wheelbase is 86 inches and its front and rear tread 48 and 49 inches respectively.

Clowes and his wife budgeted the Yeovil last Fall at a maximum of \$2000. With purchases completed and the car nearly finished, they now estimate total costs at \$1850. This includes a ready-to-race Formula car with eight wheels and tires, and covers all outside service expenses, gas for the welding, oil for the garage heater, etc.—everything but their own labor.

Bob Haas, of West Hyattsville, Maryland has raced a variety of production-class cars—MG's, Triumphs, Jaguars and lastly a Berkeley, always looking for a mount that could be competitive without spending too much on "up-to-specs" preparation. Like many others he found the answer in Formula Junior.

Bob began with a wrecked Triumph 10 sedan, which yielded a low-mileage 948 cc engine-gearbox unit and an undamaged front suspension, as well as a differential, some instruments and other minor accessories. Junkyards also supplied a VW rear suspension assembly and a Renault rack-and-pinion steering gear. To join all this together some one-inch square tubing, .014-inch wall, was acquired, which proved to be tricky to bend but easier to weld than round-section tubing. To get the drive shaft past the driver, Haas offset the engine to the right and the seat to the left.

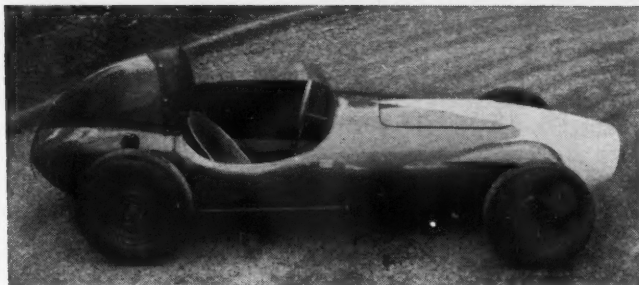
The first trial of the bodyless car was successful except for the front suspension, which had been softened by using lighter coils than the stock Triumph parts. This made the handling too mushy and the original springs were quickly replaced. Since then an aluminum body has been fitted, riveted directly to the frame tubes. General hot-rodding has increased the output of the Triumph engine, but if it's not adequate there are still 150 more cc's that the boring bar can liberate.

This has been a quick cross-section of the kinds of Juniors that are blooming in the back yard—two with front engines and two with 'em in the rear; two with ladder frames and two with space-type; engines by Fiat, DKW, Goliath and Triumph. Variety we expected and variety we have. But one of the subtly exciting sidelights of our search for back-yard Juniors has been the secondary motive: Formula 1 in '61! Most Junior builders have been keeping the 1 1/2-liter limit in the backs of their minds, leaving room for that twin-cam Climax, sleeved-out Giulietta or RS Porsche engine—to be fitted when the chassis's proved and the finances allow. Even if the new G.P. Formula isn't honored by the major builders, as seems more and more likely, the grown-up Juniors could still give a boost to Formula 2. Anyway, as SCI said over a year ago, "the fun of this Formula is and should be doing it yourself".

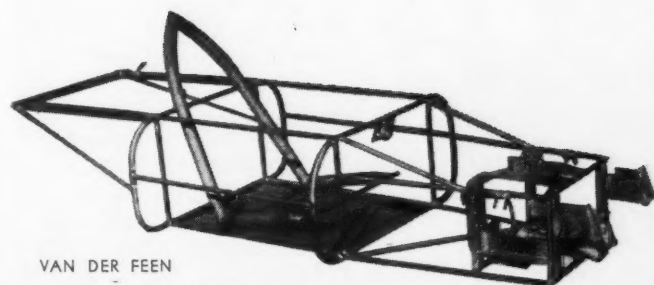
—Frank J. Heymann  
Dic Van der Feen  
William H. McMichael



BRADLEY



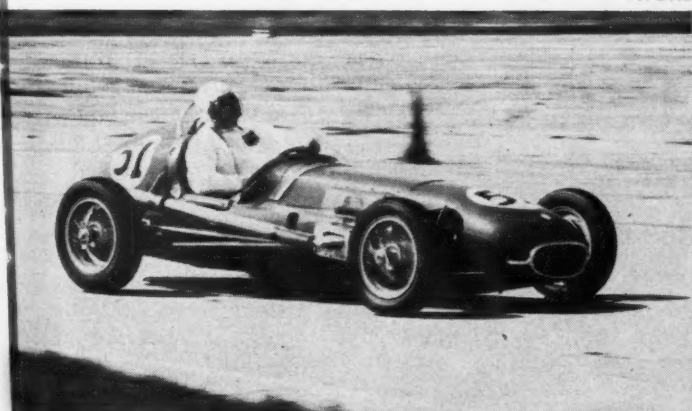
Under the Performance Engineering banner, Detroiters John Camden, Bill Bradley, John Woodhouse and Harry Constant have produced the Civet Jr., using Triumph Herald power and suspension parts in a neat space frame.



VAN DER FEEN

George Clowes's Yeovil frame gains added stiffness from roll-bar-seat structure. Welding by Allison Clowes has neat, professional appearance.

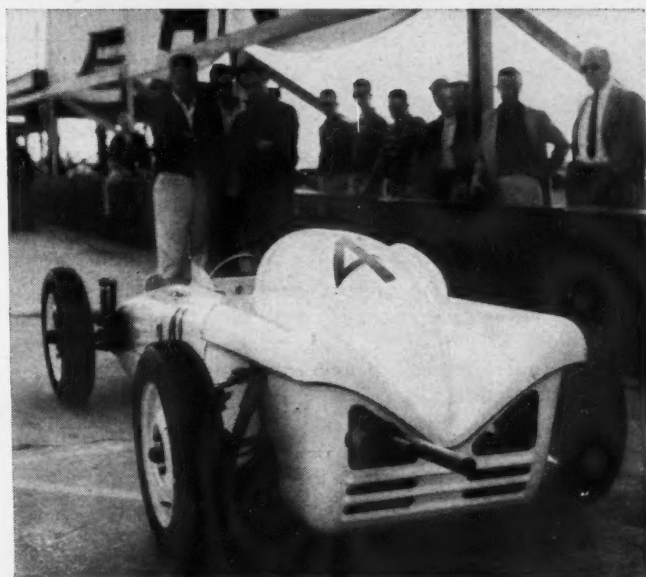
TYPOND



Jim Haynes's showing at Sebring was the best by far of any U.S.-built Junior. Fiat-powered, Jocko-built car handled well, lacked right gears.



Square tubing made welding easier on the Haas Junior. Triumph engine is offset to right, driver to left. VW gas tank is held by shock cord.



HSM from Haverford has unique, highly-styled shape. Last-minute move of radiator from rear to front was hastily made before Sebring debut.

► Imagine taking a stock convertible from a Detroit line and beating the Ferraris and Maseratis, say, in a latter-day Grand Prix, or the Offenhausers in a current "500." Unlikely, to be sure. Yet America once produced a car that took such heroics in stride. It was the Lozier, built originally at Plattsburg, N. Y., later at Detroit, between the years 1904 and 1914.

Running against the Loziers in the 1911 Vanderbilt Cup race at Savannah were many of the world's crack racing cars — America's Marmon, Mercer and Pope; three big chain-drive specials from the Fiat factory at Turin, Italy; from Germany a pair of gleaming Mercedes race cars built at great cost. It was said that the Mercedes factory had sent over these two cars primarily to lift the Cup and to win the Grand Prize three days later. Superb machines, their engines were early prototypes of those used in German warplanes in

as Mercedes, Fiat and Benz — threatened to sweep America's top events, Lozier was one of the tiny handful of native stalwarts that helped to maintain the prestige of American builders. Aside from the Vanderbilt it won such early classics as the Elgin National and Santa Monica road races. Twice it took the big-car division at historic Fairmount Park. It dominated the rugged old 24-hour affairs at Morris Park and Brighton Beach, set speedway records at Atlanta and Playa del Rey, and may well have been the actual winner of the first Indianapolis "500." It was indeed a mechanical marvel.

Even stripped of its fabulous racing record the Lozier would have to be ranked with the great motor cars of history. Strong, flexible, engineered to precision in every detail, the hand-built Loziers were noted for elegance as well as speed and stamina, incorporating such expensive features as all-aluminum coachwork and ball-bearing engines with gear-driven fans. It was said that a Lozier properly maintained would never wear out. Virtually all moving parts in both car and engine were carried on ball bearings or tapered roller bearings (a total of some 58 frictionless bearings in each car). Frames were made of high-alloy steel and were heat-treated in molten lead, a unique process that produced members of unparalleled rigidity and strength. Each finished Lozier was road-tested for 500 miles, returned to the factory, completely disassembled, reinspected, reassembled and road-tested again before delivery. Naturally, this careful construction came high. Lozier's price tags ranging from five to eight thousand dollars were stiff indeed for that preinflation era.

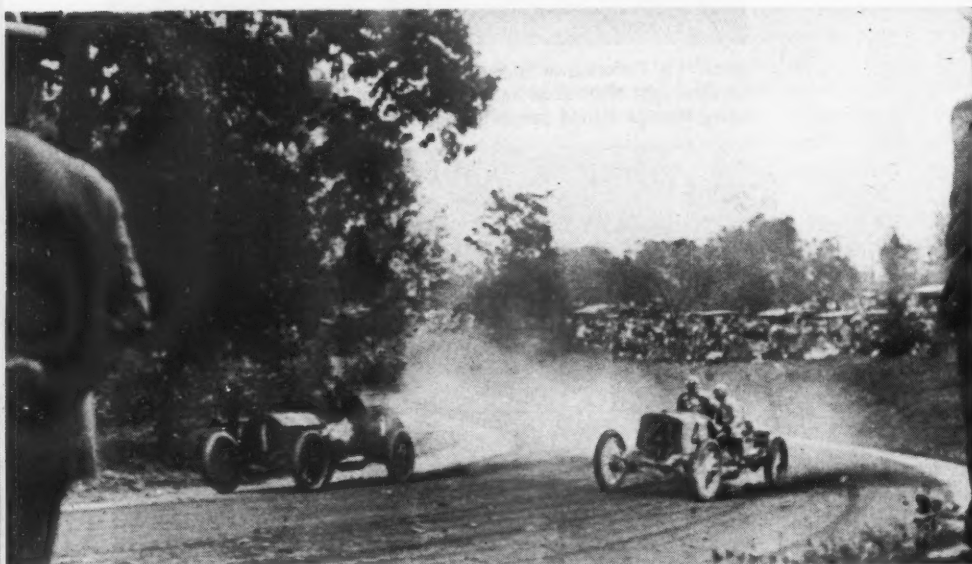
Despite its essentially stock character the Lozier had scant respect for speed records previously set by special racing cars. When the great David Bruce-Brown gunned his German Benz to first place in the 415-mile Savannah Grand Prize race on November 12th, 1910, his solid 70-mile-per-hour average marked a new long-distance high for American roads. Racing men generally agreed the Bruce-Brown mark would be hard to beat — some, indeed, thought it might stand for years. Actually, it held for just

twelve days. On November 24th a 46-horsepower Lozier driven by "Terrible Teddy" Tetzlaff blistered the Santa Monica road course at a near-73 mph clip for 354 miles, handily erasing the Bruce-Brown record.

Comparison of Savannah Benz and Santa Monica Lozier verges on the bizarre. The Benz was a huge 120-horsepower special, a factory-built racing job whose reported cost was in excess of \$20,000. The Lozier, by contrast, was a production passenger car that had actually been serving as a demonstrator for the Los Angeles agency until a few days before the Santa Monica meet. When the agency decided to enter a car in the local classic the demonstrator was stripped of lamps, fenders and touring body and fitted with straight external exhaust stacks and force-feed oiling. (The Tetzlaff car, an independent entry, was the only competition Lozier to carry such alterations. All Lozier factory entries adhered rigidly to AAA stock specifications.)

Among the cars defeated by the Lozier at Santa Monica was the powerful Fiat that had been driven by European ace Felice Nazzaro at Savannah. Immediately following the Savannah race the car had been purchased by the Los Angeles

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## THE INCOMPARABLE LOZIER

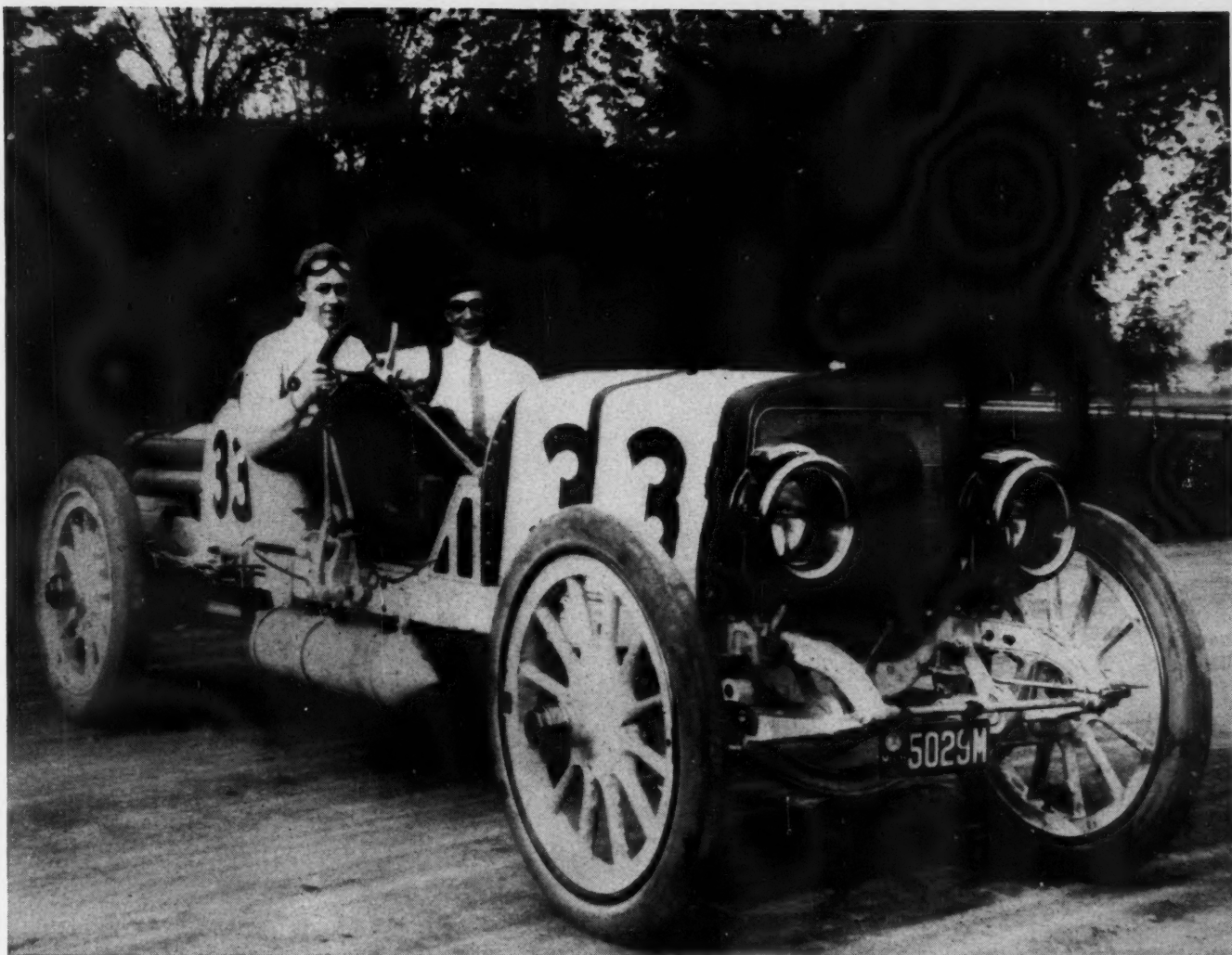
by Thomas L. Gibson

**Suited equally to street use or racing, America's big white Loziers were hundred-mile-per-hour performers in a mile-a-minute era.**

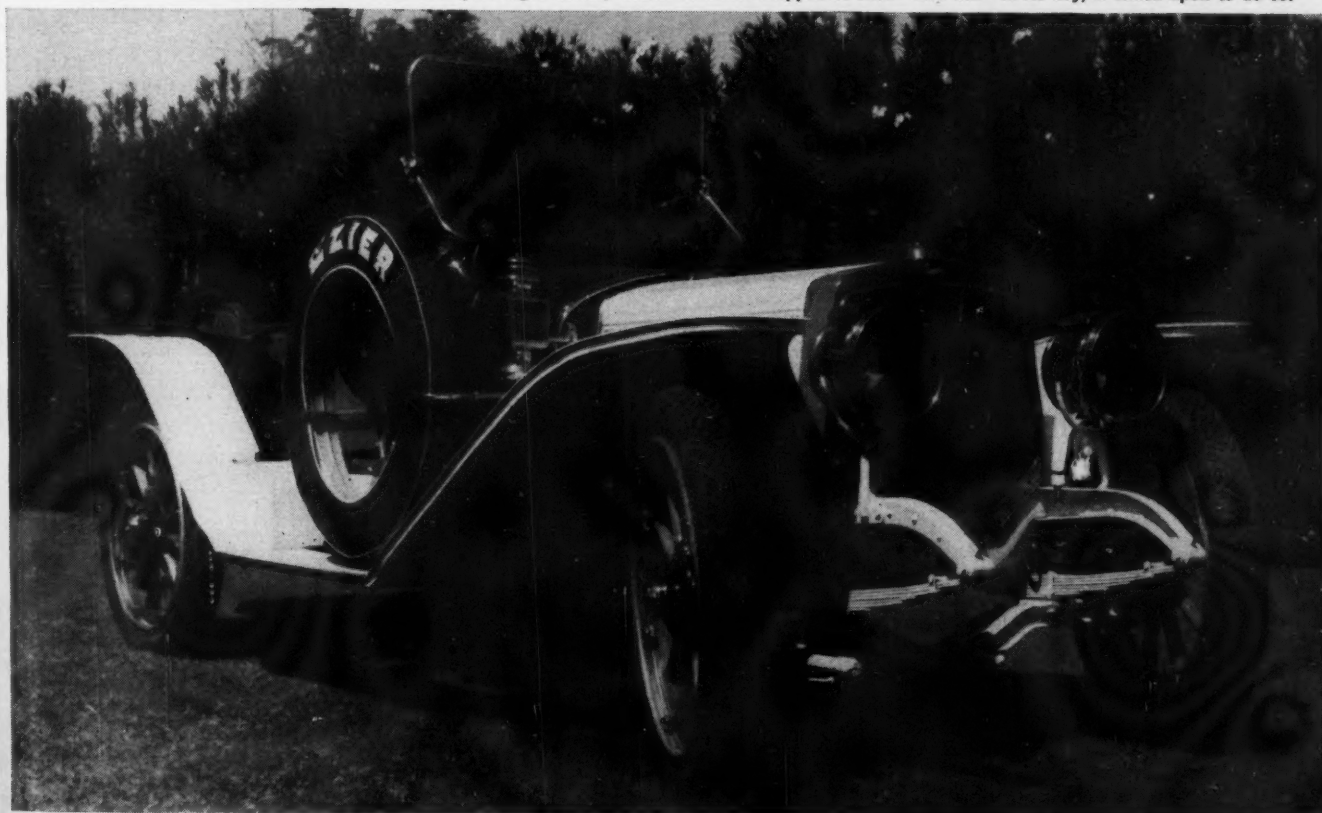
World War I. But the German cars were not good enough — nor were the others. A stripped production Lozier driven by 26-year-old Ralph Mulford beat them all, averaging a rousing 74 mph for 291 miles over a tortuous gravel road course. Later, a Lozier official summarized the race in one laconic statement. He said, "The special cars were faster on the straightaways but we killed them on the turns." It was a reasonably accurate appraisal. The Lozier was indeed far from the fastest car present. It won by virtue of superior cornering and acceleration, the very elements in which the touted specials were supposed to excel.

This Vanderbilt performance was impressive, but for the Lozier it was hardly a novel show. During its last great racing years the Lozier repeatedly ran against the best specially-built racing cars of its time. And it is fact, not fiction, that the Lozier people never troubled to build a racing car themselves. Competition Loziers were merely production passenger cars stripped of lamps, fenders and touring bodies, with bolster gas and oil tanks mounted for racing. In this form Loziers raced from coast to coast, on dirt horse tracks, on gravel road courses, on brick, board and asphalt speedways. When Europe's Grand Prix racers — notably such giants





The two faces of Lozier. Above is Ralph Mulford with 1911's second-place Indy car, which was driven back to the factory and sold as a used car. Below, Don Colee's "road-equipped" 1909 four-passenger Lozier, which could be stripped to race—and win—in its day, if called upon to do so.





PHOTOGRAPHY: PERRIN

# MIDWEST MONTE CARLO

by Dic Van der Feen

Stern-faced team of Doyen and Gibbs shows strain of winning ride





► The sport of American rallying has been accused of many things. One English observer suggested that our rallies must be subsidized by watch manufacturers. Many have questioned whether navigators ever see the countryside for the maze of paperwork, computer, and slide rule calculation they must practice. Others have noted that the "sport" in sports car rallying is a bit hard to find when the driving challenge is about as invigorating as a parcel post delivery route. Quite a few "rallyists" actually refuse to run unless assured that the entire route is on paved roads with not a yard of dirt or gravel surface to sully their glazed contemplation of the concrete landscape stretching ahead.

This too-familiar mathematical rally with route instructions that lead you slack-jawed down numbered highways has threatened to become the national ideal. Fortunately for the vigor of the sport, there are many islands of sanity within the borders of this continent where it is clearly maintained that a rally is an endurance test of both the navigator and the driver. If there is a suspicious hint that this is a European definition, the suspicion is correct. It would be hard to classify the Alpine, the Liege-Rome-Liege, or the Monte Carlo rallies by any other description.

Outstanding North American examples of this healthy school of rallying include the Rose Tree Motor Club of Landsdowne, Pennsylvania and its annual all-night haul through the moraines of eastern Pennsylvania. The MG Car Club's 1000-mile jaunt through the New England states is traditionally a "driver's rally". The Cumberland Motor Club of Portland, Maine presents a 24-hour twister each January that puts a premium on ability to "stay between the ditches". Out in Vancouver, the Sports Car Club of British Columbia regularly stages a three-day affair which, according to the organizers, offers "little need and less time for an advanced mathematician" but develops in drivers an intense familiarity with the back roads of Canada's most western province. And further east, the famous Canadian Winter Rally is fast-developing a reputation as a driver's event.

There are others, of course, every weekend. We have mentioned only major events. Among the big ones, the "Frostbite 500" has certainly taken its rightful place. Sponsored by Milwaukee's Great Lakes Sports Car Club, the third annual Frostbite 500 was an all-night, all-day terror run through one of Wisconsin's heaviest snowfalls during the worst winter in several decades. The GLSCC was formed in 1956 with a single purpose: to put on a very few top-notch events annually. It was intended to provide important competition activities without diluting members' energies through a monthly-event regimen that too often means mediocre quality. The specific aims were to put on a big rally, a big race, a big hill climb, and a big New Year's party annually. Much of the overall objective has been achieved and, most startling, the achievement has been gained by a total GLSCC membership of 23.

The GLSCC's "big rally" was the Frostbite 500, first run in February, 1958. Bob Schindler, inventor of the Frostbite, explains: "First, we felt there was a gap in the events calendar around here in mid-winter that wasn't necessary. Also, we knew we needed a big one — the casual Sunday rally had become a dodo as far as getting a big entry was concerned. Third, we were completely out of sympathy with the mathematical, easy-to-follow trend in rallying. And, finally, there is a great, rugged section of southwestern Wisconsin unknown to most people. A really rough winter rally seemed a natural."

Word of the first Frostbite 500, with its modest number of entrants, passed among the brethren in the Chicago-Milwaukee area. It was reputed to be a mad, icy, bitter test of driving that went through some "mountains" in Wisconsin no one had ever seen before. For 1959, the Frostbite 500's reputation went before it and the entry list was up 50 percent. It was a magnificent, below-freezing climb and return

from Milwaukee to the hills around Baraboo in sun-struck winter weather but with many feet of snow piled at the sides of the roads. It was tough and long — 500 miles without any real break including some tight navigating chores.

The word was out in time for the 1960 event and the maximum entry was obtained from the rally "truthseekers" between central Wisconsin and northern Indiana.

The first 124-mile leg was three hours and forty minutes of demanding driving and to-the-second navigation that proved the downfall of numerous entrants. Instructions were tough but fair with some innovations and many snow-packed corners that several drivers tried to straighten out. They couldn't, and the culprit snow deposited nearly a dozen of them gently into ditches where they made well-cushioned landings. Car damage was almost nil thanks to the soft stuff; people damage was entirely absent.

Final Position	Driver	Navigator	Car	City	Points
1	Doyen	Gibbs	Corvette	Milwaukee	209
2	Masek	Nelson	Porsche	Chicago	539
3	Hughes	Rubenzer	A-H	Milwaukee	554
4	Dick & Joan	Drexler	TR-3	Milwaukee	614
5	Tamsen	McDonald	Corvette	Milwaukee	644
6	Fleischhacker		MGA	So. Milwaukee	657
7	Barlow		Alpine	Northbrook, Ill.	686
8	Cary	Roehl	VW	Menominee Falls, Wis.	756
9	Suter	Larson	VW	Milwaukee	804
10	Stevenson	Schindler	Porsche	Elm Grove, Wis.	996

Wisconsin farmers, alerted beforehand, enjoyed a remunerative night with tractors and chains suitable for French, English, German, Swedish, Italian, and even Corvette bumpers.

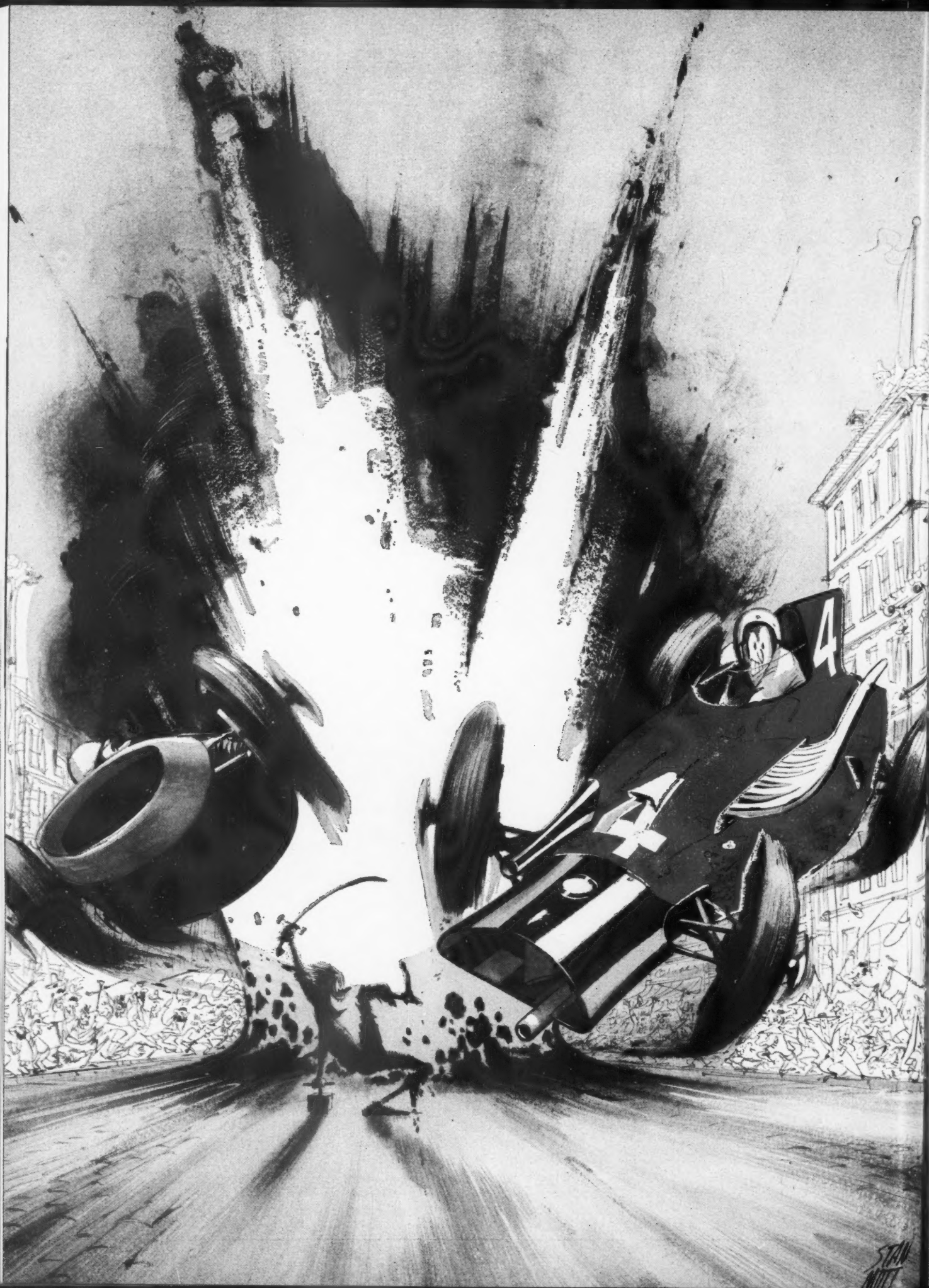
Attrition was most severe on this first leg. While learning the "snow feel" through the steering wheel, many "lost it" and abandoned the ordeal. Some were physically unable to unditch. A few felt that 400 more miles were more than they cared to challenge.

After reaching the Mississippi and the Minnesota border on a route west that would not occur to the AAA in its wildest fantasies, the Frostbite 500 supporters turned back east to a late-morning check point near Richland Center, Wisconsin. The four-hour leg was a 125-mile section entirely on back roads, with snow well above the sidewalk casings. Sunday morning plowing was unknown in the area, and non-rally cars were so infrequent as to be disbelieved when encountered while negotiating left-hand curves on the left-hand side of the road and vice-versa.

And so it was — a reassuring reminder of how tough many people like their rallying. The Frostbite 500 Committee, gazing bleakly at the whirling blizzard, thought they had a disaster on their hands. The 45 finishers, almost to a man, thought the Committee superbly fortunate in having a really good storm for their mid-winter classic.

Agreed: the Frostbite 500 was a bit too long, little being proved by the final 150 miles; the check point organization was only fair; the 10 percent cut in average speeds introduced by the organizers because of the snow was unnecessary.

BUT — the route selection, the phraseology of the instructions, the wealth of scenic, little-known roads, the hills, and, particularly, the magnificently horrible weather added up to a first-class driving and navigating test that no participant will ever forget. Next year, the Great Lakes SCC will merely have to whisper the date of its spectacular winter driving test and stand back to avoid being trampled by drivers who want to boast, "I've been on a real rally!" —DVdF





# THE BIG PIG'S NOBLEST RACE

by Robert G. Lurie

► Signor Pignatelli paced up and down the pit apron, mumbling to himself and occasionally bumping his big fat belly into the fragile noses of his racing cars. Behind him, step for step, paced Joe Provone, sweating bullets and just as worried.

On the race track, a few cars practiced in a half-hearted manner, because nobody knew if there was going to be a race tomorrow.

It was a big race, all right — the first Gran Premio de Cigaro, celebrating the third month of the new revolutionary government of the Island of Panatella, with prizes to be conferred by El Jefe himself, the liberator of the people, Dr. Perfecto Castrato. But early on the morning of practice day, Ferrari's ace driver, world champion Julio Maria Fandango, disappeared. An hour later, a note was delivered to the Race Impresario, Dr. Raul Corona Castrato:

"Kindly include me out." (it said) "I am being held prisoner by the 12th Committee of Young Revolutionaries to protest the amateur way the current revolution is being handled by that lousy Perfecto Castrato and his whole rotten family." Signed, J. M. Fandango, World Champion.

Now with Ferrari out of the race, Pignatelli had a good chance to win. But what kind of morality was that? It was like a fixed quiz show. Besides, chances were there would be no race unless Fandango could be rescued in time to start. No race, no starting money. No starting money, and Pignatelli would go back to hopping up Fiats for the juvenile delinquent trade. So Signor Pignatelli paced — and wondered if he should rescue the Champion. He had the means to do it. The means were right behind him in the person of Joe Provone, his number three driver. And Joe paced right in back of him, and worried even more. He knew he was the way to rescue the Champion, and if the *patron* told him to set the wheels in motion, he'd do it.

He didn't want to do it, but if he wanted to drive a Pig in this or any other race, he'd have to do it. Even if it meant ruining his reputation with the girls at the Sports Car Club. Even if he could never get a drink at Chanteclair again. He'd have to call Uncle Dino in New York, and do like he was told. And once you go talking to Uncle Dino, God knows what kind of friends and acquaintances you're liable to have. You'd go into the garage to pick up your car one evening and discover six guys lined up against the wall, with Uncle Dino holding a Tommy gun on them, and humming "My Funny Valentine." Or you'd pick up a new G.T. Pig for delivery to a customer and find out the engine wouldn't fire because the cylinders were filled with a solution of uncut heroin and watered Chianti.

Joe was an all-round hundred-percent Amurrican boy. Only a couple of tickets for speeding. Not one Sullivan law violation. Not one dalliance with artichokes or extortion. Not even a brush with the Mann Act. He liked Big Dino, but he didn't want to get to know him any better. It could only lead to getting arrested, at best. Not even counting getting rubbed out because somebody got you mixed up with cousin Charlie Provone, the eminent finger-man.

At this point, Signor Pignatelli turned on Joe and informed him he was to rescue Fandango. Get on the phone and set the wheels turning. It was only to be expected that Pignatelli would do the noble thing: rescue a rival driver and thus lose the race. It was the thing that the public demanded of Pignatelli. Nobility. Besides, there was the starting money to be considered.

Joe headed for a phone. And two minutes later, everybody on the course knew the race was going to be on.

They all fell to wrangling about starting positions, and flagging, and the special regulations. And they were right, too. It was a *funny* race, with odd regulations — but as the top British driver said, "these Panatellas are a *funny* lot of buggers." They are, too, but you've got to take into account that this was a political race, to show the world that the Castrato boys had really carried it off. That accounted for the odd regulations.

For instance, everybody who drove an open car had to have a beard, or he wouldn't be allowed to start. It was a point of national pride. Everybody protested that there hadn't been sufficient advance notice, but after all the government was only a few weeks old.

Herr Raubvogel von Auspuff sent a cable off to Stuttgart and in eighteen minutes five *coupe* versions of the W196 machine (with spare parts, tires and tubes) were dropped by parachute in time for practice. This solved the problem of the slow growth-rate of Teutonic beards.

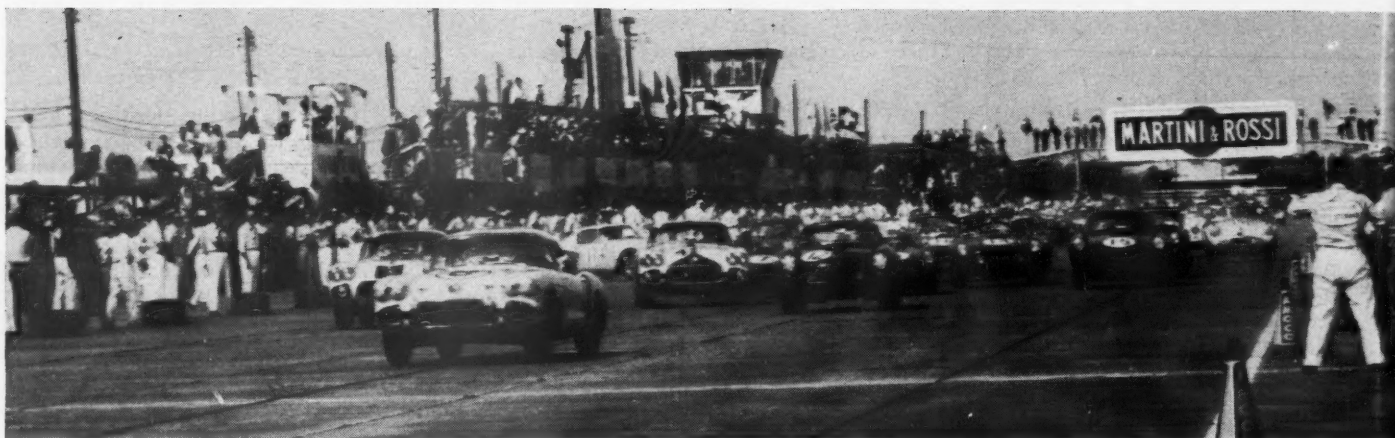
The British acted with characteristic aplomb. They pressed their four bearded motoring correspondents into service, replacing Moss and his co-drivers. Practice times dropped a bit, especially when Cuthbert McWhortle experienced a bit of a prang, killing himself in the process. But the green cars were there, having a go at it!

There was another odd regulation. All cars of 6½ liters, or those of any capacity which were painted blue and white, were to run the race without tires: on the rims, that is. Someone hinted that Dr. Perfecto Castrato was anti-American. But this could not be proven, and the regulations were there for all to see, in Dr. Raul Corona Castrato's own handwriting. The Equipe "Cinq et Dix" elected to stay in the race, simply adding a Pratt and Whitney aircraft engine to the rear of the car to overcome the additional rolling resistance.

Meanwhile, in a futuristic phone booth off the Avenida de Independencia, which constituted the main straight, Joe put in a call to New York. The candy store didn't answer, and the East 114th Street Social and Bocce Club claimed they

(Continued on page 90)

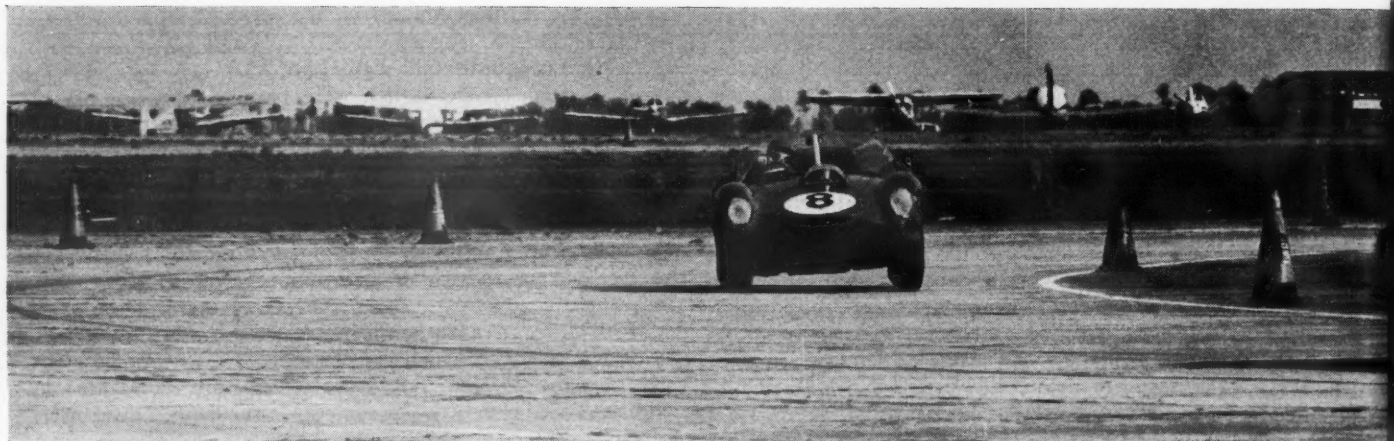




At the start the Hall/Fritts Corvette leads briefly, and was still the top Chevy at the end of twelve hours: sixteenth place, leading the Lola.

## BIGGER AND BETTER

Jack Nethercutt, here storming off the airport into the road course, had to buy four Ferraris to get this one but found it worth a third place.



by Don Typond

► It was that time of year again, the time when the air around Sebring is filled with the scent of Castrol. When the atmosphere is tense and exciting . . . but was it?

Here is the way it looked, from New York to Sebring and back, the way we jotted it down on our trusty clipboard.

Didn't seem too important to get there very early so we left on Tuesday before race. Took two Volvos equipped with Vocaline two-way radios to relieve the boredom of the trip and to aid us at the track. Real easy that way to coordinate gas stops, food stops, etcetera stops. Trip was the same as ever . . . dull. Got all the way to South Carolina before the fuzz grabbed us. Saw him lurking in the rear view mirror, called other Volvo to slow down, took it easy. Got nabbed anyway. What for? Seems this particular trooper was interested in buying a small car, stopped them at random to ask about gas mileage, reliability and so forth. Had a friendly chat, left with a smile and a wave.

Weather warmed up considerably as we progressed south. Got to Georgia Wednesday evening, had a talk with a guy in Salt Lake City, via Vocaline. He was as surprised as we were.

Arrived Sebring Wednesday night, went to bed. Out to the track on Thursday to watch Formula Junior practice in the morning. Fascinating little machines. Cooper looked like

little Cooper, Lotus looked like . . . well, maybe it goes fast anyway. Once again Juniors ran on short track. All right-hand turns. Seems they should make it a little more interesting, especially since the cars are so pretty. Talked to Jim Haynes and "Jocko" Maggiamo about their car. Very American-looking next to all that imported stuff. Sort of combined midget-Indy look. They were concerned about gear ratios, their far-ratio gearbox not suited to the course. Handles great though. (See story, page 34)

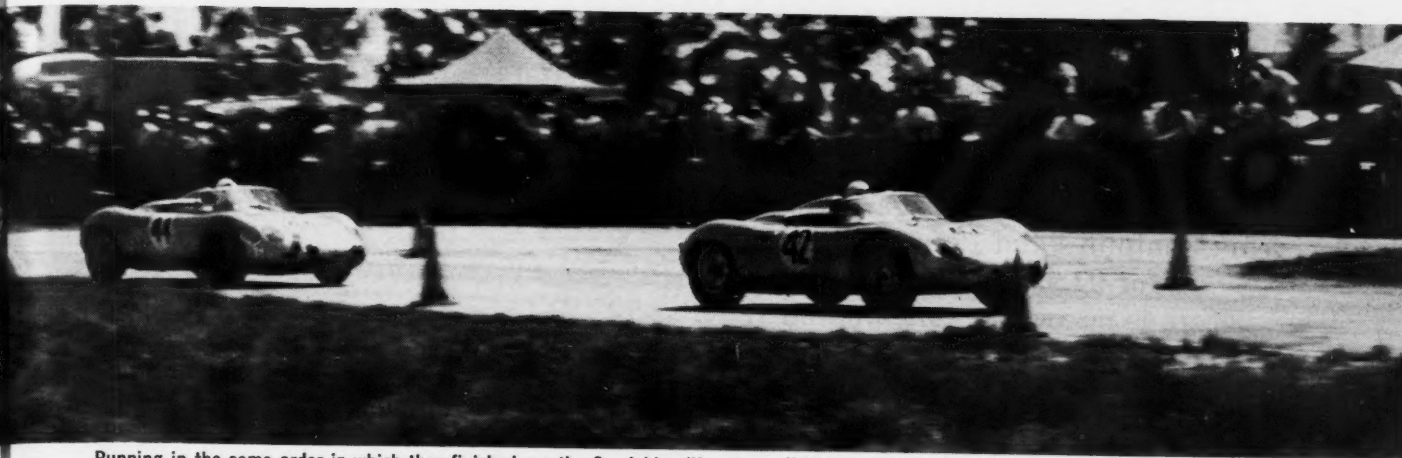
Thursday afternoon practice for the sports cars. Anxious to see what was done to meet new F.I.A. rules. Crazy! Osca with a coupe-de-ville trunk to accommodate F.I.A. suitcase. Birdcage Maserati with a transparent billboard for a wind-screen. Sometimes I wonder. Sports cars practiced with under-1000 cc-G.T. cars. Little ones made the Corvettes look pretty terrible in the corners. Practice was practice . . . nothing really exciting.

Thursday night, practice in the dark. Cunningham's red Maserati going like mad with Hansgen at the wheel. Caught him with our two-dollar stopwatch at three minutes, twenty-point-five seconds. One half second off the lap record . . . at night. Did we forget to wind the watch?

Cars always look faster at night. Amber light on roof made hard-top Healeys look like high-speed taxicabs.

(Continued on page 80)

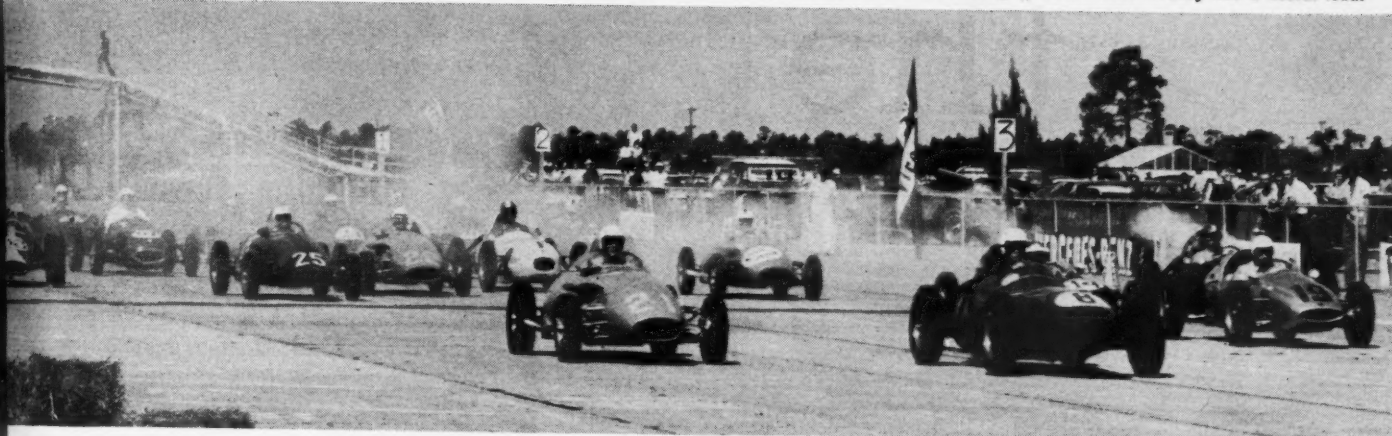




Running in the same order in which they finished are the Gendebien/Hermann #42 Porsche and the Holbert-entered car, nine laps behind at the end.

# R SEBRING—NEXT YEAR

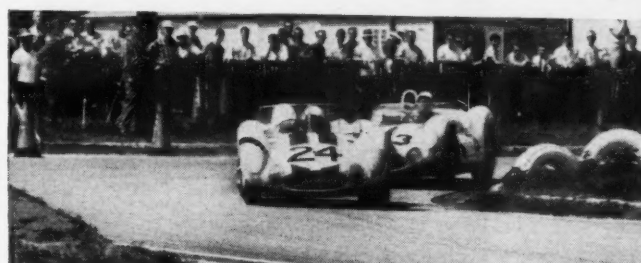
As the Juniors leave the grid, enveloped in smoke from the many two-strokes present, Jim Hall's winning #8 Elva-DKW already has a useful lead.



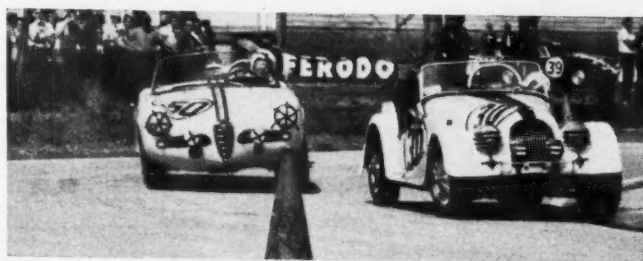
PHOTOGRAPHY: TYPOND



In the closing half-hour of the race, the John Bentley/Jack Gordon Osca (#63) snuck by the overall-winning Porsche to take the prize on Index.



Leading Moss in the Camoradi car here, the Causey/Stear "Birdcage" Maserati held third spot after 11 hours, then succumbed to gearbox failure.



Upholding the SCCA look of Sebring's entries were the Forno/Williamson Morgan, which broke a front hub, and the 19th-place Horn/O'Brien Alfa.



Nosing down under braking just before the Esses, the Geitner/Spencer 15th-place Healey comes abreast of the Johnson/Morgan G.T. Corvette.

Names to reckon with this season  
in sports car racing are  
Stirling Moss, Camoradi,  
Maserati Type 61 and, in a real  
sense, Corvette. Wearing number  
23 at Sebring, Moss's Maser  
turned the fastest lap again this  
year: 3 minutes and 17.06 seconds,  
for 94.996 miles per hour.

There is no swifter combination  
of sports car/driver in the world.

No less impressive has been the  
spirit and initiative of  
Camoradi, which has made us very  
proud of American blue and white  
in one short racing year. With  
Dan Rubin to record the action,  
two Camoradi cars here enter

# the corner



If skilled Corvette-chauffeur  
Jim Jeffords looks relaxed, as  
he tails the Moss Maser into  
the horseshoe before Sebring's  
pits, it's because Jim has done  
this many, many times before.  
Corners are old friends by now.







**CONVERTIBLE LARK**

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**BY STUDEBAKER**





► In the mid-1950's Detroit's formula for conquest in the market place was embodied in the concept of the "classless car". The differences that had prevailed historically—in size, room, finish, performance, price and general quality—deliberately were narrowed to the vanishing point. What the public was offered amounted very largely to its choice of ad campaigns, its choice of the folklore of "distinct" makes and models that differed little if, essentially, at all.

The utopian manufacturing economies implicit in the classless-car concept spelled paradise to car makers but not to a buying public whose automotive tastes were becoming more sophisticated by the day. The conformist millions passively rebelled, demanded and necessarily were given variety and distinction. In today's broad spectrum of choice, variations are played upon variations. One of the most arresting of these is the Studebaker Lark V8 convertible.

In SCI for June, '59 the Lark V8 station wagon was reviewed and the Lark sedan with six-cylinder engine was the subject of a full-scale road test. Thousands of miles were accumulated on both cars on round trips from New York to Sebring and in the traffic of the metropolis . . . not meaning Sebring. Our experience with the Lark V8 also includes driving one car from Los Angeles to Denver, over the high Rockies, plus wringing out a second specimen on our all-inclusive test course in Southern California. This was a Lark convertible with optional four-throat carb, dual exhaust and Borg-Warner torque-converter "Flightomatic" automatic transmission; this car is the one we tested.

The variation on the compact car theme represented by this vehicle has little to do with low purchase price. At this writing the Lark V8 convertible's base price (according to AUTOMOTIVE NEWS) is \$2,756, not including transportation cost from factory or the cost of myriad options. Base prices for Chev, Ford and Plymouth convertibles are \$2,847, \$2,800

and \$2,967. Even with six-cylinder engine the Lark convertible is no budget package at \$2,621, in the sense that the Lark V8 two-door sedan is, base-priced at \$2,111.

Unlike other compacts the Lark V8 convertible is a heavy car; ready-to-go weight was 3580 pounds. Its fuel consumption is not in the compact class. Under maximum-consumption test conditions we averaged 14.7 mpg and in fairly easy-going town driving the average rose to 19.5. Nor is the Lark V8's performance merely "good enough," as it is with most compacts. With one mile to wind up in, our test car streaked through the timing trap at a clocked 106 mph. In spite of a slow-to-take-hold transmission it moved from zero to 60 in just over 13 seconds.

The most striking single feature of the Lark convertible is the combined attractiveness and quality of detail and finish. The handsome, pleated vinyl seats are some of the most comfortable we've encountered in a domestic car in years. Their padding is ideally firm, their height relative to the floor is excellent and they support the back positively all the way to the shoulders. Fingerlight adjustability fore and aft is provided over an unusually useful range. The front seat is split and the passenger can make his leg-room adjustments independently of the driver. Full advantage of this feature can be taken when the optionally-available reclining seat backs are used. These recline all the way to the horizontal, forming a bed that's continuous with the rear seat cushion. Thanks to the chair-height seating and large glass area, vision from the car is very good.

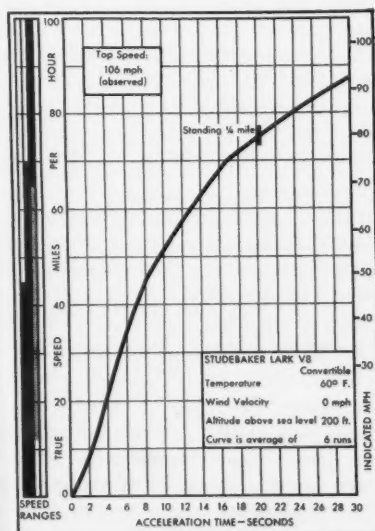
So are most of the controls. The power steering has good feel and is emphatically self-centering. In spite of 4.5 turns from lock to lock, the car we took over the Rockies had no slop in its steering and felt entirely secure. The test convertible, on the other hand, had one-third turn of free play

(Continued on page 76)

## ROAD TEST

### STUDEBAKER LARK Regal V8 Convertible

Price as stated: \$2756 basic  
Manufacturer: Studebaker-Packard Corporation  
South Bend, Indiana



#### ENGINE:

Displacement . . . . . 259 cu in, 4251 cc  
Dimensions . . . . . Eight cyl, 3.56 x 3.25 in  
Compression Ratio . . . . . 8.8 to one  
Power (SAE) . . . . . 195 bhp @ 4500 rpm  
Torque . . . . . 265 lb-ft @ 3000 rpm  
Usable rpm Range . . . . . 550-4500 rpm  
Piston Speed  $\div \sqrt{s/b}$  . . . . .  
@ rated power . . . . . 2555 ft/min  
Fuel Recommended . . . . .  
Mileage . . . . . 15-20 mpg  
Range . . . . . 270-360 miles

#### CHASSIS:

Wheelbase . . . . . 108.5 in  
Tread, F, R . . . . . 57 1/2, 56 1/2 in  
Length . . . . . 175 in  
Suspension: F, ind., coil, wishbones, anti-roll bar; R, rigid axle, semi-elliptic leaf springs.  
Turns to Full Lock . . . . . 2 1/4  
Tire Size . . . . . 6.70 x 15  
Swept Braking Area-drum F, R . . . 156, 126 sq in  
Curb Weight (full tank) . . . . . 3580 lbs  
Percentage on Driving Wheels . . . . 39%  
Test Weight . . . . . 3755 lbs

#### DRIVE TRAIN:

Gear	Syncho?	Ratio	Step	Overall	Mph per 1000 rpm
Rev	Auto	2.00	—	6.14	13.2
L	Auto	2.40	63%	7.38	11.0
2nd	Auto	1.47	47%	4.52	18.0
D	Auto	1.00	—	3.07	26.4

Torque converter ratio: 2.15 maximum at 1800 rpm.  
Final Drive Ratios: 3.07 to one (auto), 3.31 (manual), 3.54 (overdrive).



# PROJECT TIME MACHINE THE CHASSIS



Leon Duray sits at the helm of an SCI Miller at Indy, 1927.

by Griff Borgeson

► During the Twenties the Miller Engine Works was located in a large building at 2652 Long Beach Blvd. in Los Angeles. This was bench-racing headquarters in the western U.S. for the nation's best drivers and mechanics and, as such, was a clearing house for all their design ideas. It was common practice for drivers and mechanics, for whom (or for whose patrons) cars were being built, to work on their machines side by side with the Miller staff, participating in their vehicles' construction and dictating minor modifications.

Every employee was a past-master craftsman and Miller left hiring and firing in the shop entirely in the hands of Fred "Cold-rolled" Offenhauser. From the end of May to the end of October outside contract work kept the staff on its 7:30 a.m. to 4:45 p.m. day. A full-time janitor kept the plant clean and the men kept their machines immaculate on the company's time; this was the cleanest machine shop in the city. From the first of November until May long hours of overtime were worked as racing men prepared for the coming season. Even then, only about 50 percent of the plant equipment was devoted to race car work.

The Miller Engine Works (Harry A. Miller Inc. was the overall fiscal entity created, in vain, to manufacture passenger cars and aircraft engines) was almost entirely self-contained. In addition to all machine work, all sheet metal and frame work was done on the premises. All non-ferrous castings were made in the plant's own foundry; only iron castings were farmed out to the quality-conscious McCauley Foundry in Berkeley, Calif., where Offy blocks are still cast. Miller, who had been the West Coast's pioneer manufacturer of aluminum racing pistons in the Teens, mixed his personal blend of aluminum, nickel and copper, which he called Alumatloy.

With the exception of a few components, Miller racing cars were built in their entirety on the spot. Parts purchased were instruments, a few pipe fittings, ball bearings (New Departure); wheels (Rudge-Whitworth and Wire Wheel Corp. of America), magnetos (Robert Bosch), spark plugs (Champion and AC), ignition cable (Packard Electric), radiator core (Eagle), leaf springs (U. S. Spring Co.), piston rings (Perfect Circle) and some shock absorbers (Hartford). Miller made his own carburetors (his racing career began with these in the Teens) and cut all his own gears.

## FRAMES AND TANKAGE

Miller frames were formed by hand from 1/8-inch mild steel sheet and were of flanged channel section. On the f.w.d. 91 the vertical flange is 1 inch high, the upper horizontal surface is 3 1/4 inches wide, the channel is 5 inches deep and the lower horizontal surface is 1 1/2 inches wide. The frame kickups were beaten out by hand over precisely contoured cast-iron forms. The finished frame rails had no irregularities to betray their hand-made origin. In the f.w.d. 91 there is only one frame cross-member as such, this being a tube at the extreme rear of the frame. Also functioning as cross-members are the front-drive housing, the rear engine mount and forward fuel tank mounts.

The car's tail section and fuel tank are one and the same. The faultlessly smooth tank is hand-formed from steel sheet. At the front and near the bottom a 1 1/8-inch steel tube pierces the tank transversely and is riveted to a pair of large, ribbed bronze brackets which, in turn, are riveted to the inner surface of the tank. Each end of the cross-tube terminates in a ball which bolts into a bronze socket which is bolted to the inside of the frame channel. In spite of their concealed location, and typical of Miller workmanship, these socket castings are filed by hand to a smooth finish. When the tank front mounts are bolted in place the cross-tube becomes a fourth frame cross-member. Another ball joint bolts to the center of the rear cross-member to provide a flexible three-point mounting for the tank. The 3 1/2-inch opening tank cap is a positive-locking cam and lever type

(Continued on page 52)





Hours of hand labor produced sparkling gloss on steering arms and ball-joint fittings, which were machined from solid billets and from hand forgings.

## Why We've Built The Time Machine

► In the evolution of the American thoroughbred racing car the most spectacular and significant mutations occurred during the third decade of this century. Technological advancement accelerated by World War I definitely aided the sudden development of this type of vehicle, the two most important factors in this coming-of-age being: (1) the general state of the art of automotive design and (2) the talents of Fred S. Duesenberg and Harry A. Miller and the countless members of the American racing fraternity whose ideas were channelled into the organizations headed by these two great creative individuals.

The peculiar currents of influence acting among Ernest Henri (Peugeot, Ballot), Ettore Bugatti, Duesenberg and Miller have already been traced in SCI (Griff Borgeson, "An American Thoroughbred and How It Grew", October, 1956). The two Americans had worked together and were highly familiar with each other's techniques well before Miller began to build his first straight-eight in 1920. Miller, his design engineer Leo Goossen and plant superintendent Fred Offenhauser all admittedly copied the existing successful Duesenberg straight-eight racing car in many of its details (see Griff Borgeson's "Miller Was a Genius", TRUE'S AUTOMOBILE YEAR-BOOK No. 4, 1955). But Miller's erratic genius, alloyed with the practical logic of his own design team and of such talents as Tommy Milton, Frank Lockhart and Leon Duray, quickly matched and then surpassed the achievements of his Indianapolis rival (see these Borgeson articles in SCI: "Tommy Milton and the Double Duesey", November, 1958; "The Gamest Kid and the Quick White Car", December, 1958, and "Project Time Machine", January 1960).

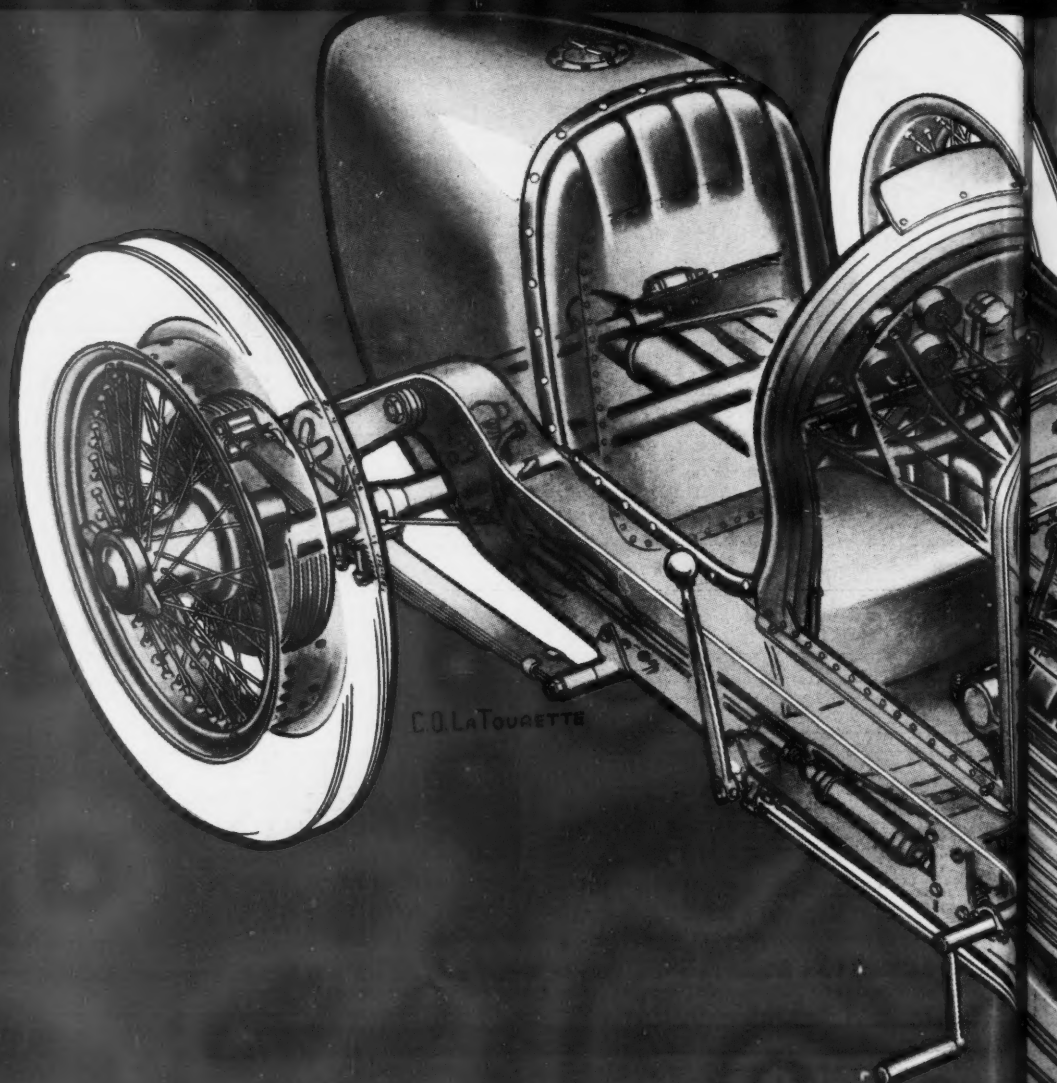
The highest refinement of the Miller engines in this decade was the magnificent 91, of which today's Meyer and Drake Offys are merely variations. The highest chassis development occurred in the revolutionary and prophetic Miller front-wheel drive. This was the world's first use of de Dion suspension in a racing car and was the inspiration for the use of front-drive by the world's automotive industry.

During this decade the competition formula went from 183 cubic inches ('20-'22) to 122 ('23-'25) to 91 ('26-'29). In spite of these drastic reductions in displacement, horsepower and speed went up spectacularly in response to a steady succession of technological advances. Still, the technical literature of the period barely notes the existence of these cars or their unspeakable superiority over anything being built by the passenger car industry. In THE ENGINEERING INDEX, the annual guide to engineering periodical literature, from 1920 to 1930 there is only one reference to Miller, only three to Duesenberg, two of which deal with the latter's passenger cars. One reasonably detailed description of a Miller 91 front-drive exists (M. Warren Baker's "Marmon Enters Indianapolis Race With Front Drive Specials", in AUTOMOTIVE INDUSTRIES of May 5, 1928). This obviously owes its existence to the fact that the cars were built on behalf of a major automobile manufacturer. Only when racing developments had possible industrial uses did the leading journals grant them space. The SAE JOURNAL, for example, gave space to Miller once in connection with front-drive and a second time, along with Duesenberg, regarding supercharging ("Front-Wheel Drives", November, 1928 and "Engines of Racing-Car Type", June, 1928). Otherwise, racing seemed to hold no interest or significance for its editors or readers. Only some enthusiast-slanted consumer magazines, including MOTOR AGE and MoToR, dealt with this subject matter to any extent. A valuable collection of these random and inconsistently-detailed references is contained in Floyd Clymer's INDIANAPOLIS RACE HISTORY, '09 to '41.

The general lack of factual data on one of the most brilliant passages in the history of American automotive engineering is deplorable. In these subsequent parts of the "Project Time Machine" series we will attempt to assemble the long-lost and scattered fragments of a worthy but neglected tradition. This reconstruction is made possible by:

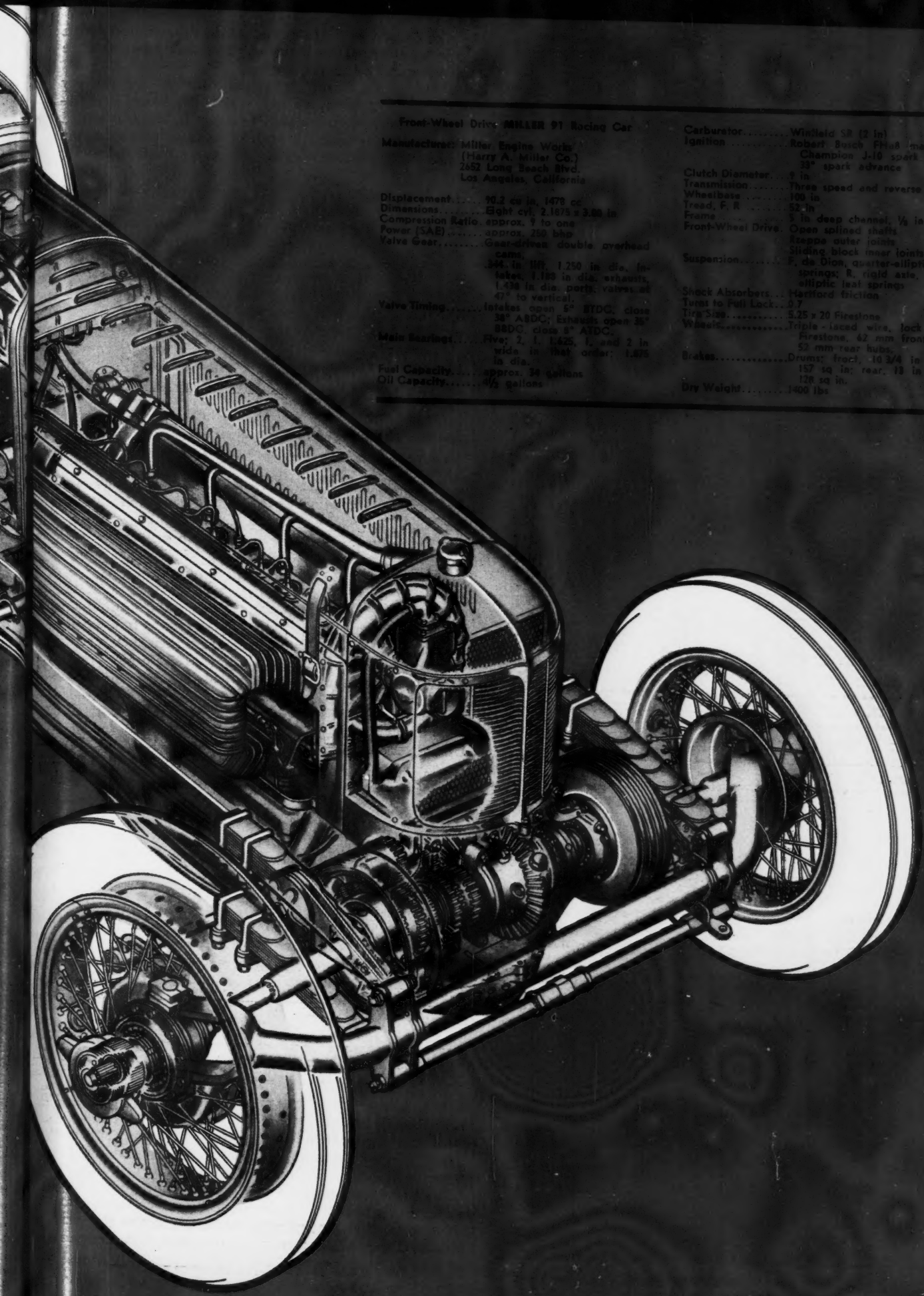
1. Personal communication with many of the creators of the tradition.
2. Possession of two Miller 91 front-drive racing cars, three engines and numerous original engineering drawings.
3. Search of the available literature.

"The Four Fetishes  
of Harry Miller  
were beauty, finish,  
light weight, and  
ultimate power output."



Studied together with C. O. LaTourrette's superb cutaway, this precisely defines the construction of one front hub. Visible are the sliding-block inner universal joint, the splined coupling, and the spherical Rzeppa outer joint.



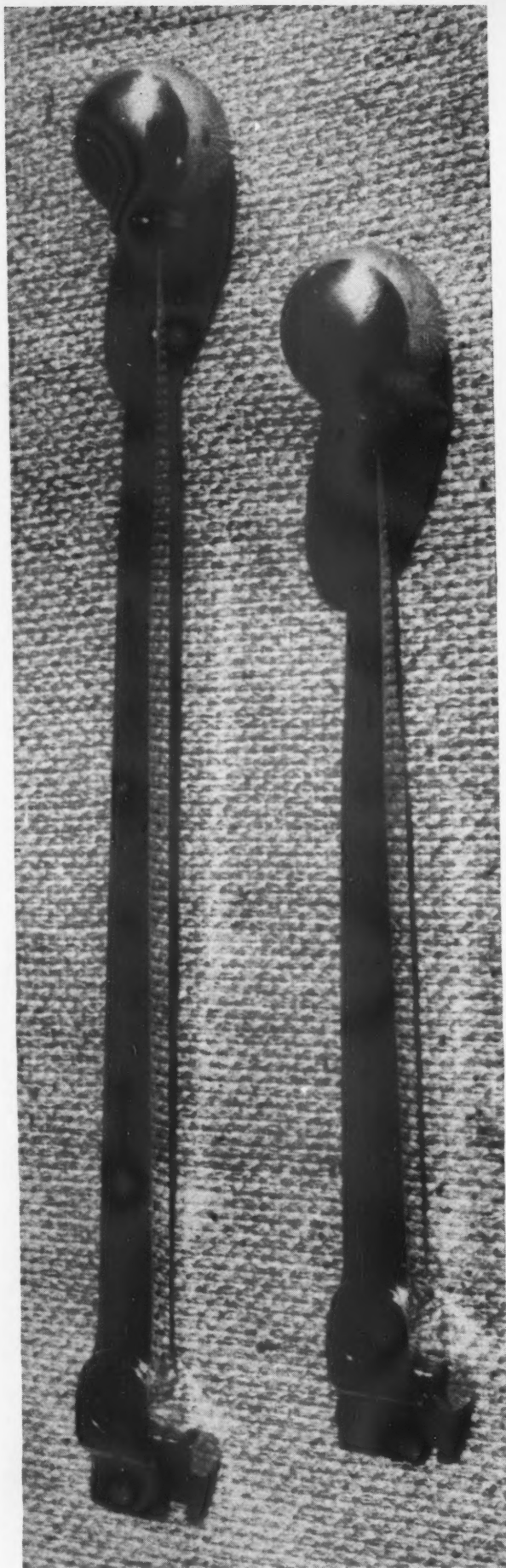


**Front-Wheel Drive MILLER 91 Racing Car**

**Manufacturer:** Miller Engine Works  
(Harry A. Miller Co.)  
2652 Long Beach Blvd.  
Los Angeles, California

**Displacement:** 96.2 cu in. 1478 cc  
**Dimensions:** Eight cyl. 2.1875 x 2.88 in.  
**Compression Ratio:** approx. 7 to one  
**Power (SAE):** approx. 250 bhp  
**Valve Gear:** Gear-driven double overhead  
cam  
344 in. I.H.V. 1.250 in. dia. in-  
takes, 1.189 in. dia. exhausts,  
1.436 in. dia. ports, valves at  
47° to vertical.  
**Valve Timing:** Intakes open 5° BTDC, close  
38° ABDC; Exhausts open 35°  
BBDC, close 5° ATDC.  
**Main Bearings:** Five; 2, 1, 1.625, 1, and 2 in.  
wide in that order; 1.875  
in. dia.  
**Fuel Capacity:** approx. 34 gallons  
**Oil Capacity:** 4 1/2 gallons

**Carburetor:** Winfield SR (2 in.)  
**Ignition:** Robert Bosch FH44 magnet;  
Champion J-10 spark plugs  
35° spark advance  
**Clutch Diameter:** 7 in.  
**Transmission:** Three speed and reverse  
**Wheelbase:** 100 in.  
**Tread, F. & R:** 52 in.  
**Frame:** 5 in. deep channel, 1/8 in. thick  
**Front-Wheel Drive:** Open splined shafts;  
Rear axle joints  
Sliding block inner joints  
**Suspension:** F. de Dion, quarter-elliptic leaf  
springs; R. rigid axle, semi-  
elliptic leaf springs  
**Shock Absorbers:** Hartford friction  
**Turns to Full Lock:** 0.7  
**Tire Size:** 5.25 x 20 Firestone  
**Wheels:** Triple-laced wire, lock-ring  
Firestone, 42 mm front and  
52 mm rear hubs  
**Brakes:** Drums; front, 10 3/4 in. dia.,  
157 sq in.; rear, 13 in. dia.,  
128 sq in.  
**Dry Weight:** 1400 lbs



Even Miller's levers were superbly tapered, with hollow knobs.

which originated with Miller and still is the standard design used in professional track racing. The tank contains large transverse and longitudinal baffles.

On the 91 f.w.d. the 4½-gallon reservoir for the dry sump lubrication system is a steel tank with a finned, cast aluminum base, carried just under the cowl. It, too, is mounted at three points, is bolted at each of its front corners to the cowl-firewall frame and rides at the rear on a ball and socket joint.

This cowl frame consists of ⅝-inch square steel tubing, welded to light angle-iron rails which rest on the frame channel. This tubing and the radiator are the only supports for the .075-inch aluminum cowl and hood body panels. Scarcely any welding is used on the entire vehicle.

#### UNUSUAL AXLES

The four fetishes of Harry Miller were beauty, finish, light weight and ultimate power output. To achieve strength with lightness he used the finest materials that his times afforded. All stressed steel parts were machined from hand forgings of 6145 chrome-vanadium alloy, selected for its combined strength and ductility. One exception was the wagon-axle tubes: front-axle tube in the case of the rear-wheel drive cars and rear-axle tube in the case of the f.w.d.'s. For these Miller used chrome-molybdenum, then a rarity.

His f.w.d. axles were startling and controversial for their 2½-inch drop at the spindles, which made possible lower frame kickups, lower spring mounting and lower lines overall. The spindle and drop were machined from the customary hand-forged 6145 billet, then shrunk onto the chrome-moly tube. First their collars were drilled and then the drilled holes were filled with weld, which made positive the joint between the tube and the spindle-drops.

The front de Dion tube was made in three sections: two gracefully-curved outer tubes and a removable central one which permitted easy access to the front-mounted transmission and final drive. These tubes, including their long spring-perch flanges, were machined from 6145 forgings, then hardened and heat-treated. After elaborate machining the outer tubes were packed with sand and their ends sealed with soldered-on caps. Then they were heated with two torches and bent slowly over a jig, then hardened and heat-treated.

The feather-light wheel hubs were machined from heavy forgings; the front hub weighs 4½ pounds, the rear 3½. The rear wheels on the f.w.d. readily accepted stock 52 mm Rudge-Whitworth or Wire Wheel Corp. of America wheels and hub shells. The front hubs, with their massive and complex contents, required more space. For these Miller designed and built his own 62 mm hubs and wheel-hub shells, to which standard 20-inch rims were laced with wires in the unusual multiple of seven. On the ex-Packard Cable SCI Specials the lock rings and wheel rim lips were drilled for cotter-pinning to prevent loss of rings and tires in the event of blowout. The wheels of one car were fitted with inner and outer aluminum discs for reduction of wind drag at high speed. Firestone 500x20 to 550x20 balloon tires (introduced in 1925) running at 30 to 35 psi inflation pressure brought release from the terrors of their high-pressure (circa 80 psi) predecessors.

#### SPRINGS, SHOCKS AND STEERING

The leaf springs of these Miller race cars were made by the U.S. Spring Co. of high-carbon (about 60-point) spring steel. The leaves were oil-quenched at about 1750° F, cooled and then drawn (tempered) in a furnace at about 1100° F to give the required resilience. This heating produced inevitable scale which was removed by grinding, the marks of which are the only instances of slightly rough finish on the entire vehicles. Parenthetically, Offenhauser states that about 100 man-hours were devoted solely to the hand-finishing of each Miller race car, to the commercial detriment and artistic enhancement of the product. Unlike most of the

(Continued on page 94)

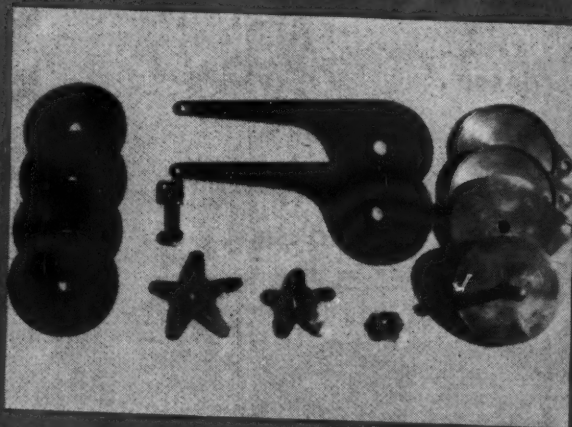




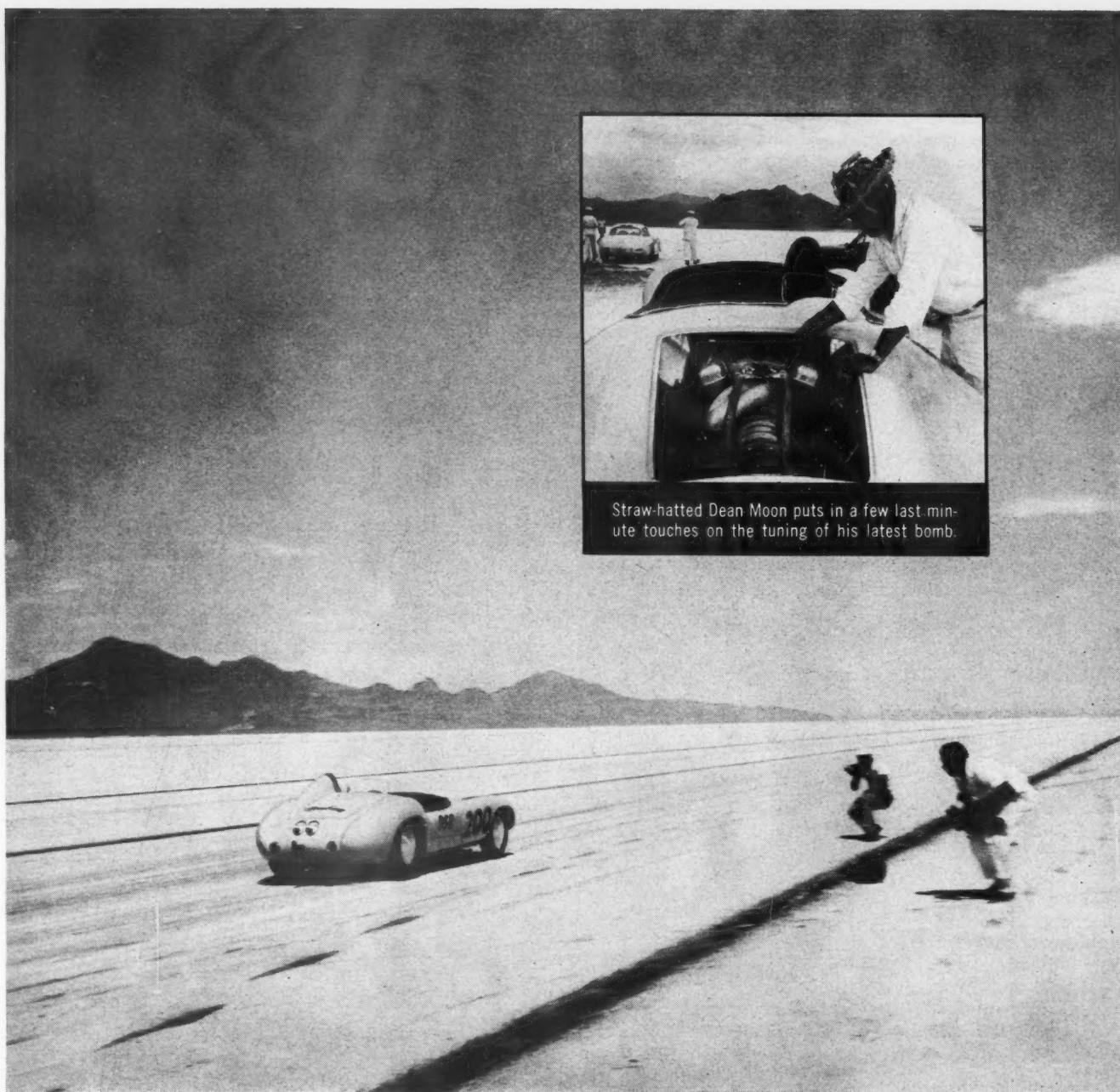
Miller brakes were found to be well up to track demands but far short of road-racing needs. Bronze carrier mounts aluminum shoes, on rear brake assembly shown here. Big 13-inch rear drum weighs 8 1/2 pounds, against 7 3/4 pounds for 11 3/4-inch inboard front drum.



De Dion front axle sections were machined from hand forgings of chrome-vanadium steel, including hollowing for lightness.



Miller purchased only the star spring washers for his front shock assemblies. Friction discs at the left are of maple.



Straw-hatted Dean Moon puts in a few last minute touches on the tuning of his latest bomb.

# DEAN MOON'S MOONBEAM

by Griff Borgeson

**Designed initially for Bonneville's wide open spaces, this prototype may sire a small series of cars tuned for road racing.**

► The canary-yellow Moonbeam that clocked a cool 169.81 mph at Bonneville last fall is the prototype of a series of rapid two-seaters that is being built in small volume by Moon Equipment Company of Santa Fe Springs, Calif. These machines are designed to suit the tastes of a handful of owners whose primary interest is in performance on the straightaway but who also expect to be able to turn brisk times around the average road course.

Roadsters have gone much faster than 170 mph on a dead-straight chute but they've usually done it on special fuel and/or with many more inches. Moonbeam ran as fast as it wanted to on gasoline and nitro was saved for the F.I.A. record runs which, though hoped for, failed to materialize on the Salt last year.

Moonbeam was a creation of speed-equipment manufacturer Dean Moon and NHRA president Wally Parks. The concept underlying the project called for a blend of good hot rod and good sports car practice. This meant a production engine of not-excessive displacement, a positive-displacement supercharger, a sophisticated frame and suspension and a small and slippery body. The result is a spectacularly-performing vehicle that any specials builder can duplicate with relative ease.

The Moonbeam chassis was designed to fit the well-known  
(Continued overleaf)



## **SPINE-TINGLER!**

Boot this one from standing start to legal limits in seconds! And feel excitement start to tingle at the base of your spine.

Lean back against genuine saddle-grain leather bucket seats. They're contour-cushioned to support you cockpit fashion.

Turn off the fairway into the rough . . . with steering so light and accurate you can aim this heavyweight with needle-point precision. The "F's" brilliantly engineered suspension chal-

lenges chuck-holes and choppy trails. Snares a snake-like curve and uncoils it with even-keeled assurance. This is ground flying at its level best!

Chrysler crafts the 300-F in limited numbers—designs it for those fortunate few whose sporting blood runs red.

Join the club! Put this fiery "F" through its paces. There's nothing like it this side of the sky!

**Exclusive, exciting, engineered for action.**

## **CHRYSLER 300/F**



Devin fiberglass body. Using a 50-inch tread and 100-inch wheelbase, a box-type frame was built of 1½-inch, .049 wall mild steel tubing. Weight of the bare frame, complete, is about 150 pounds.

Moonbeam's suspension, which provides an extremely flat ride, is an interesting combination of vintage and modern techniques. For simplicity and light weight each wheel is provided with a single Monroe-Woodhill combination coil spring and shock absorber, as used on the Devin SS. The front axle is a Ford I-beam unit and the rear axle is Ford with a Halibrand quick-change center section. Radius rods and Watt linkages are used at front and rear and these are laid out to provide nil interference with the body's underpan. Heim joints are used on the threaded rods and the car's running gear and suspension are unusually adjustable. Its wheelbase can be varied over a four-inch range, each wheel can be quickly adjusted to the front, rear or transversely and parallelism of the short drive shaft can be adjusted to suit any load.

Moonbeam's front wheel spindles are Lincoln Zephyr components modified to use thrust-type ball bearings and the '49 Mercury splined rear-axle half-shafts also run on ball bearings. The brakes are Mercury Bendix assemblies and, on the Salt, the 15-inch Halibrand magnesium wheels were mounted with 670 x 15 Firestone Bonnevilles at the rear and 550 x 15 Firestones at the front. These latter tires had been made for the Renault *Etoile Filante* gas turbine streamliner in '56. Steering is the Franklin worm-and-wheel type.

The original Moonbeam engine was a 303-cubic-inch Chev V8 running a 3/16-inch stroked crank. The GMC 4-71 Roots supercharger, adapted by means of a Potvin kit, is fed by Hilborn injection. The cam is a Racer Brown roller, rods are boxed, main-bearing caps are steel and the crank-rod-piston assembly was balanced by Edelbrock. The ported and polished heads are fitted with 1/16-inch oversize valves and, in anticipation of running nitrated fuel, a 5½-to-one compression ratio was used during the Salt runs.

This mechanical c.r. became effectively much lower at

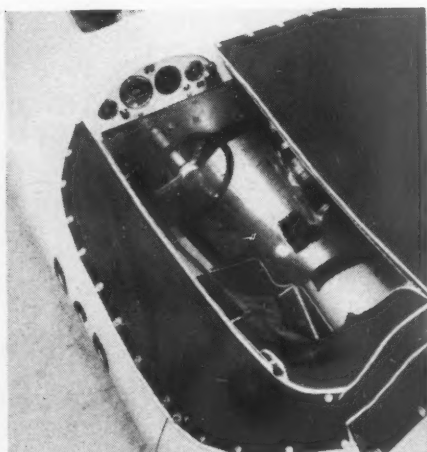
better than 4000 feet of elevation and the engine's performance suffered from deficient manifold pressure. Using the same heads, Moon installed an .060-inch overbore, 291-cube Chev which he had in reserve. Piston height in this engine was stock, and the c.r. was eight to one. This new engine overheated on its first run at the conclusion of the meet but there was no lack of manifold pressure. Right after returning to Southern California Moon took the car to the San Gabriel drags, where the class record was 122 mph. On his first run he turned 119 and on the second topped 126 mph with an e.t. of 11.50 seconds. The 291 engine is probably the combination that will be used in successors to the Moonbeam prototype.

Moon had two distinct exhaust systems made up for this car, one a header-collector type and the other a set of individual pipes. According to his experience, performance of the engine when unblown was best with the collector system. With the supercharger, power output was much better with the separate, straight-through pipes.

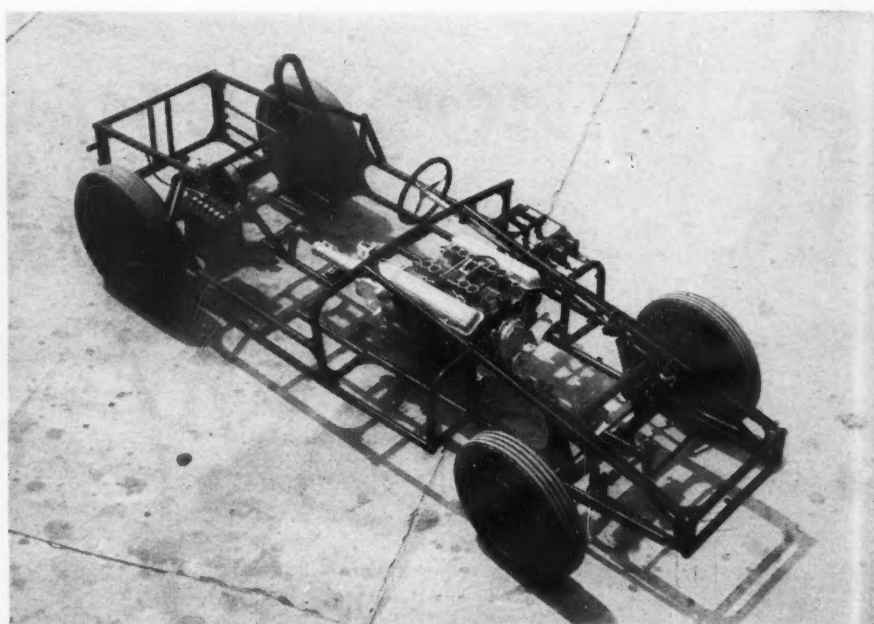
Moon's cooling system for this car possesses some interesting and unusual features. All hose connections — on radiator, pumps and engine — are ordinary garden-hose fittings. Thus, the ¾-inch top-quality neoprene hoses can be connected or disconnected with a literal twist of the wrist. Then, in place of a horsepower-consuming mechanical water pump (eliminated by the in-front supercharger drive), Moon uses two small, 12-volt Jabsco pumps designed for serving live-bait tanks on commercial fishing boats. A rheostat in the circuit permits precise regulation of coolant circulation. The car's radiator was cut from a Ford core.

Another novel feature of this machine is the use of hydraulically-actuated throttle linkage. This makes the adaptation of any type of linkage extremely simple, requiring only a hose between the two hydraulic cylinders.

Moon confidently expects to top 200 mph on the Salt this fall. Readers interested in acquiring copies of the Moonbeam may contact Moon Equipment Co., 10820 South Norwalk Blvd., Sante Fe Springs, Calif. —GB

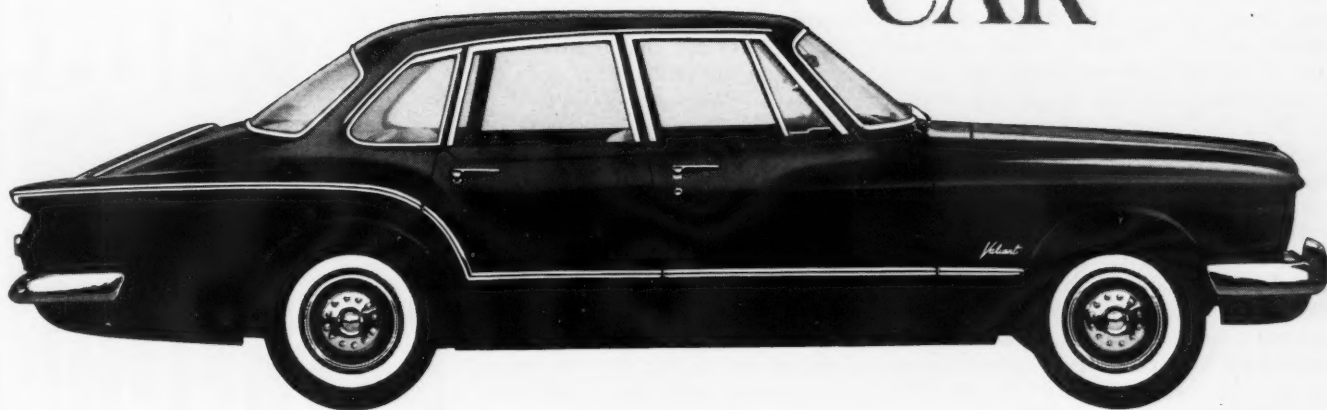


Go Kart steering wheel (above) makes it evident that this Moonbeam was intended for the Salt. Chevrolet engine is set well back in tube chassis. Solid axles are mounted on coil springs.





# GET THE CAR



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## Valiant

KING OF THE COMPACTS

► Advance billing of the Los Angeles Examiner and Herald-Express second annual Grand Prix for Sports Cars promised an epic battle of the champions. It was predicted that the competition between Indianapolis winner Rodger Ward, and World G.P. champ Jack Brabham would long be remembered after the dust had cleared from the USAC - F.I.A. sanctioned meet at the Riverside Raceway. But the best laid plans of mice and men went their much-quoted way in this case. Not that there wasn't exciting racing with an international flavor; performances of the first two cars across the finish line - Carroll Shelby in a Type 61 "Birdcage" Maserati and Ken Miles in the latest Porsche RS-60—were worth the price of a ticket. And the crowd, estimated by the sponsoring newspapers at 75,000 and by the rival dailies at "over 50,000", got as many kicks from the suspense engendered by the heavy attrition rate of the several leaders as from the race proper.

What happened to Ward and Brabham? Initially, Ward was scheduled to drive Bill Murphy's Kurtis-Buick, a machine that has been in semi-retirement of late. Unfortunately, the engine blew in practice. Then he was handed a Corvette-powered Devin SS, owned by Al Bowman. During Sunday qualifying Ward completed almost half a lap around the 3.275-mile circuit before he spun lazily at turn six, frying the clutch during the rearward portion of his maneuver. After a futile call over the loudspeakers for an 11-inch clutch, the champion was seated in Ebb Rose's Houston-based Kurtis-Corvette and told to go. It was a sporting gesture, all things considered, and seemed to offer a chance to an outclassed machine. Rose had turned 2:25.05, qualifying fifth slowest, and had managed a second spot in the consolation event. But success wasn't in the cards for Ward and Rose, and the car failed completely just past the halfway point in the race. Ward's comment was philosophical: "You just aren't meant to run some races." He does, however, plan more road racing and feels that he still has a lot to learn to keep up with the fast drivers - a modest statement coming from a man of his proven driving ability.

#### BRABHAM'S LACK OF SUCCESS

Brabham's story proved a point: it is very difficult to compete successfully so far from home - unless one is prepared to transport an entire factory racing division *a la* Sebring to the race course. Differences in temperature and humidity alone can upset winning form. In this case, flying a larger gas tank (increased from 20 to 32 gallons) and special tires (a set disappeared mysteriously in Cuba) from England just hours before the event, helped but not enough.

In actual fact, Brabham qualified at a respectable 2:08.45, fifth fastest and a new course record for under-2000 cc cars. But time trials don't win races. The first indication of serious problems came at 2:07 P.M. while the cars were on the grid waiting for the green flag. Although engines had been started, Brabham was given five minutes grace to repair a faulty coil and was then started in last spot. By lap five he was in eighth overall but making trouble gestures to his pit crew. Two laps later he pitted with overheating (trackside temperature was 94 degrees) and carburetion problems (couldn't obtain the jets he wanted). After five minutes in the pits he was back in the fray, lapping steadily at 2:14 and turning 136 mph through the back-straight traps. But there were more agonizing pit stops to come and despite very good lap times Brabham had to be content with a sixth overall, three laps, 23 seconds behind the leader, and second in the under-two-liter class by virtue of the heavy casualty rate.

#### SHELBY TOOK IT EASY

Shelby's winning drive, which netted him some \$7,200 for 204.6 miles of racing, was the careful, almost methodical pacing that pays off in endurance races (he won Le Mans, remember) or in events where high temperatures and a fast leader's pace spell failure for those who try to keep up. The tall Texan deliberately held his Team Camoradi Maser behind early leaders Bill Krause (D-Jag-Corvette), Bob Drake ("Birdcage" Maser) and Dan Gurney (Old Yaller Mk. II) until the unfortunate trio dropped, one by one, along the wayside.

Krause, who jumped out front, was forced back and finally out with engine woes after a dozen laps of pulling-away-on-the-strights-style leadership. Drake would pull up and occasionally pass in the turns, then lose out on the 1.1-mile back straight. It was doubly heartbreaking because Krause had only made the starting grid after borrowing a complete Corvette gearbox from the parts supply of the Peter Hand Brewing Co. Scarab team. Then Drake, fastest qualifier 2:05.24, took over until the 25th tour of the 62-lap go round. At that point, even new spark plugs and a fresh supply of water didn't improve the sick sound of the overheated Maser engine.

(Continued on page 66)

# RIVERSIDE BATTLE OF ATTRITION

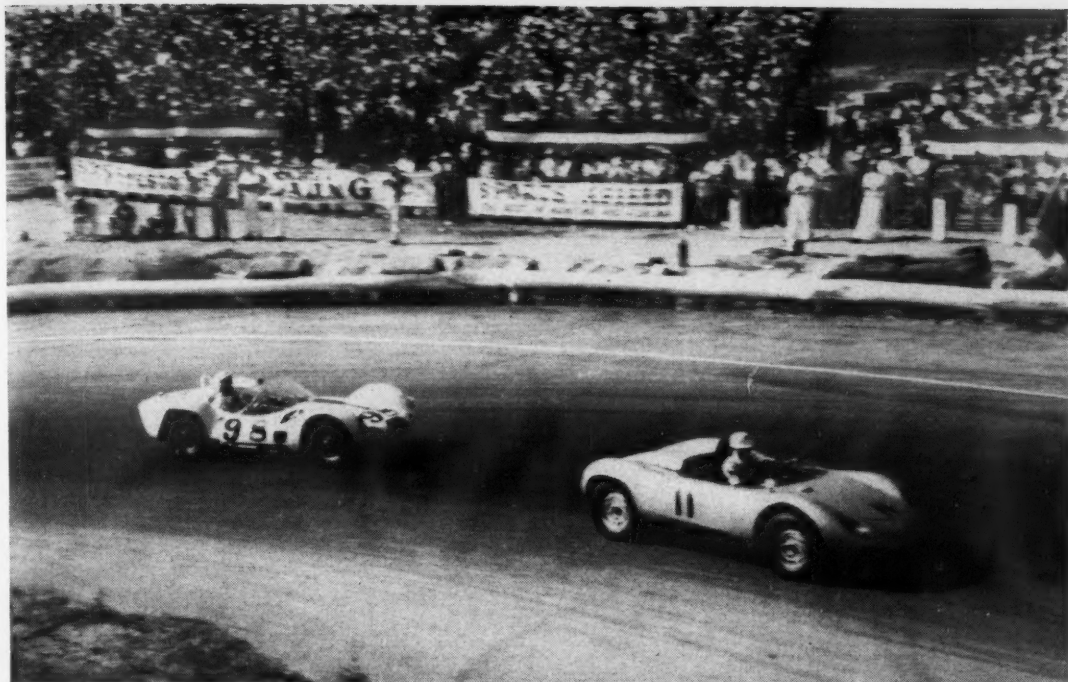
by Wayne Thoms

#### OFFICIAL QUALIFYING TIMES

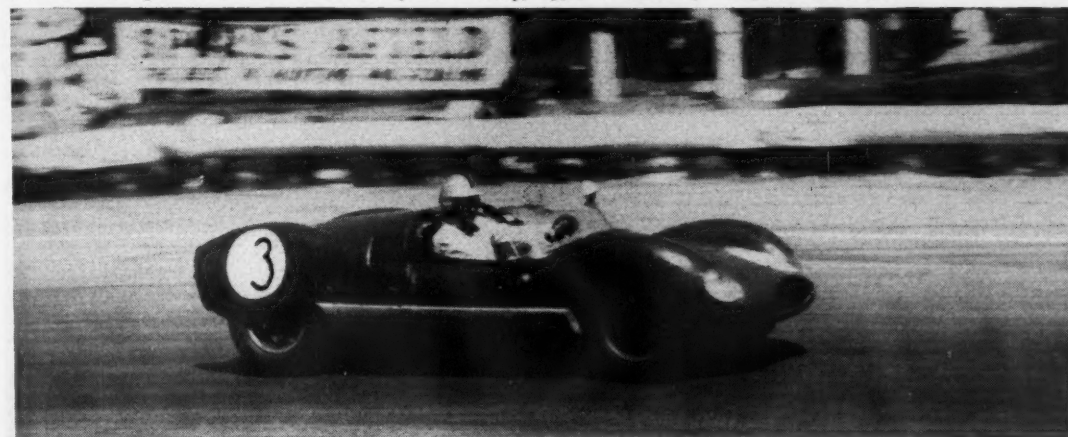
Posi- tion	Car No.	Driver's Name	Car	Fastest Qual Lap
1	49	Bob Drake	Maserati Type 61	2:05.24
2	27	Bill Krause	D-Jag-Chev	2:06.97
3	70	Dan Gurney	Buick Spl.	2:07.80
4	98	Carroll Shelby	Maserati Type 61	2:07.94
5	3	Jack Brabham	Cooper Monaco	2:08.45
6	181	Chuck Stevenson	Mercedes-Corvette	2:08.56
7	66	Jim Hall	Maserati 4.5	2:09.27
8	67	Chuck Howard	Huffaker-Chev	2:10.77
9	58	Tony Settember	4.9 Ferrari	2:11.40
10	46	Dick Morgensen	3.0 Ferrari	2:12.08
11	45	Lloyd Ruby	4.5 Maserati	2:12.22
12	50	Ken Miles	Porsche RS 60	2:12.57
13	69	Bob Bondurant	Maserati	2:13.06
14	1	Augie Pabst	Scarab	2:13.80
15	166	Jack Flaherty	Lister-Jag	2:13.94
16	85	Clem Proctor	Aston DB3S	2:14.68
17	170	Pete Woods	Devin-Chev	2:14.70
18	82	Jim Connors	Lister-Chev	2:14.87
19	24	Russell Cowles	3.0 Ferrari	2:15.24
20	10	Chuck Parsons	Lotus-Ferrari	2:15.30
21	18	Carlyle Blackwell	Jaguar D	2:15.52
22	6	Alan Connell	4.1 Ferrari	2:16.42
23	152	Jay Chamberlain	Lotus XV	2:17.22
24	4	Jack Graham	3.0 Ferrari	2:17.48
25	16	Lance Reventlow	Scarab	2:18.69
26	60	Don Wester	Porsche RS	2:18.95
27	97	Rick Lewis	Chev Spl.	2:19.44
28	19	D. D. Michelmore	Porsche RS	2:19.86
29	25	Jim Chaffee	Devin-Chev	2:20.59
30	112	A. J. Foyt	C-Jag-Chev	2:20.84
31	102	Jack Nethercutt	3.0 Ferrari	2:20.89
32	8	Jack Matthes	Aston-Chev	2:21.57
33	711	Bill Dixon	Maserati	2:21.62
34	32	Kurt Neumann	Lotus XI	2:22.29
35	61	Art O'Connor	Lola	2:22.78
36	11	Pedro von Dory	Porsche RS-60	2:23.10
37	126	Jim Pigott	Lotus	2:23.97
38	7	Art Snyder	Elva MK V	2:24.10
39	21	Ebb Rose	Kurtis-Corvette	2:25.05
40	161	Phil Carter	Talbot Spl.	2:26.26
41	199	Jerry McGee	Kurtis-Corvette	2:29.69
42	22	Bob Challiman	Lotus-MG	2:37.16
43	77	Bill Leyden	OSCA	2:37.33

The full listing of qualifying times is presented because it reveals a fascinating cross-section of cars and drivers competing for the best possible time on a given circuit. This is top-notch bench-racing material.





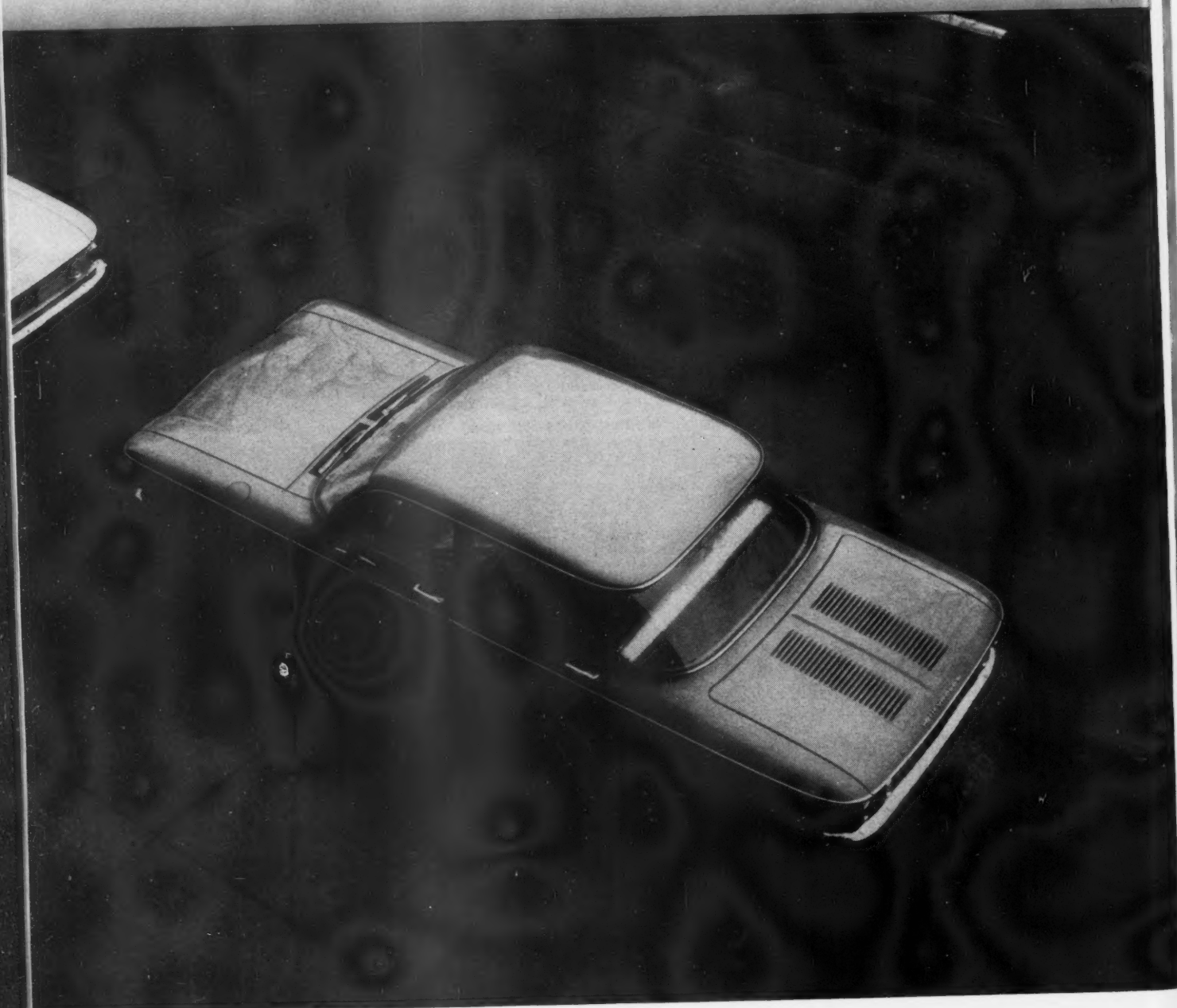
From left to right the winner and second placer: Shelby; Type 61 Maserati, Miles; RS-60 Porsche.



World Champion Jack Brabham tried hard, but repeated pit stops relegated him to 6th place overall. A smiling Dan Gurney stands beside Old Yaller after broken balancer halted car on the 39th round.

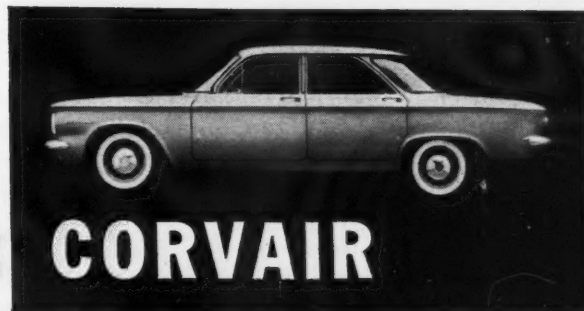


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## Road Research Report: CORVAIR



► The Corvair's designers make no bones about it: "Our first objective was to attain good styling proportions". The first modern compact was started at a time when it was not very evident what the American public wanted in such a car, other than that it be smaller. Having outsold the competition for years on the basis of more-appealing styling, GM's first goal was natural. Harley Earl, then styling head for GM, felt the Corvair should have a silhouette like that of GM's big cars. Thus a shorter car had also to be a lower car. The big car's passenger compartments were already as low as they could comfortably be (and perhaps lower), so the desired reduction had to come out of the substructure. The frame rails became integrated with the body construction and, presto, there stood a four-door sedan no higher than a Porsche.

The designers then had a choice of front-wheel drive or a rear engine, as there was certainly no space for a drive shaft. With increasing numbers of Volkswagens swarming through even Michigan, they chose the latter, counting on aluminum's low density and air cooling to keep tail-heaviness to a minimum. It helped, but not enough. The engine and rear suspension are 105 pounds over the target weight used in preliminary design, which moved the c.g. two inches back from a point that was already daringly to the rear. For the technical history of the Corvair, see the November 1959 SCI.

### STEERING, OVER AND UNDER

As we expected, our steering behavior test on the 400-foot-diameter test circle produced very interesting results. The designers have built in strong initial understeer and the first increments of speed definitely required additional steering lock to stay on course. With recommended tire pressures (15/26 psi, front and rear) this was true up to 35 mph. From there till 39 mph no additional lock was needed and at higher speeds the tail-heaviness took over. Oversteer is an un-

stable condition, practically by definition, and though we could maintain 40 mph we were busy twisting and turning the wheel in order to stay near the intended line. The change to oversteer is sudden at first acquaintance. The sharper the driver's reactions, the better he is able to cope with it.

This area of oversteer is a difficult one in which to maintain a steady path (constant radius), but it can easily be used, and safely too, in everyday driving as a transient maneuver. Traffic permitting, city driving can become gymkhana-like as you toss the Corvair nimbly around right-angle turns. However, a quick-steering adaptor, as on the racing Corvettes, would certainly be in order. It would speed up the too-slow steering at the moderate cost of raising the now-light forces.

When we tried 25 and 50 psi, front and rear, copying the Sebring settings of the racing Corvairs, we obtained consistency in the oversteer area. Much less lock was needed at, say, 42 mph than at, say, 39 mph. When we went back to stock pressures in the front only, we expected to increase the preliminary understeer sharply. This didn't happen at all, indicating that after a point, the Corvair chassis is insensitive even to gross changes in relative tire pressures. The only benefit of higher tire pressures is less "nervousness" in the oversteer phase and a slight postponement of its onslaught. Driving a Corvair with 15 psi all around — just a check — is as skittish as dancing on ball bearings, and oversteer begins very early indeed.

It's difficult to say whether the Corvair would be pleasanter for an enthusiast to drive if the initial built-in understeer were milder. Quicker steering alone would reduce the understeer seen at the steering wheel, but a good-handling car still must not exhibit any violent changes in steer characteristic as speed or curb radius change, at least within the ranges of cornering

forces intended to be used. By this definition the Corvair does not have good handling as far as enthusiasts are concerned, a real let-down after the Chev's improvements in recent years. It goes very rapidly from strong, built-in understeer to inherent oversteer. This of course applies during fast driving, or to brisk driving on slippery surfaces. On the latter the Corvair driver must exercise great caution, as the transition sneaks up on you unexpectedly.

An anti-roll bar was fitted to prototype Corvairs but not put into production. With quicker steering, it might have pushed off the onslaught of oversteer enough so that it need never be experienced except when the driver was right on the "limit". Closer-spaced rear springs of the same rate to decamber the rear end would do much the same in a more constructive way, but after Sebring's trial they have been removed from the list of options available.

#### CAMBER COMPENSATOR

The much-heralded camber compensator offered by Empi Products in California seems to us, on theoretical grounds at least, to have no value of itself on the Corvair or on any similar automobile. The purpose of such a transverse compensating spring, whether it be leaf or coil (as in the case of the Mercedes 220 and 300SL) is to allow the stiffness of the original rear springs to be *reduced* without diminishing the load-carrying capacity of the back end of the car. Such a spring is deflected only when both wheels move up or down together. In roll, it exerts no effect at all. Unless the actual spring rates of the Corvair's coils are reduced in proportion to the added stiffness provided by the camber compensator, no reduction in rear roll stiffness will result, and none of the claimed advantages will be apparent. We feel that, as with an anti-skid control marketed so successfully a few years back, the prime effect of this device is likely to be psychological.

#### RIDE AND TRACTION

Traction is excellent, especially on wintry roads, while steering is fingertip-light at all times. So light, in fact, that we fault it for being too slow. Two and one-half turns to full lock is a lot for a great big 39-foot turning diameter. And 39 feet is a lot for a car that's supposed to be compact.

Elimination of the conventional and heavy rigid axle at the rear of the Corvair at last brings America its own car with all-independent suspension. The bonus to the user, besides technical novelty, is a ride of extraordinary comfort. Because this ride is achieved with light suspension members (low unsprung weight) rather than through unduly soft springs, the usual concomitant of wallowing through large dips is absent. The Corvair tends to follow the road through a dip instead of floating across it and bottoming out on the far side. On corduroy or cobblestone surfaces, the steering picks up some vibrations but the rear end refuses to hop even when cornering briskly.

#### BRAKES

Brakes on the Corvair have more effort to exert at the rear; so much so, they have slightly larger wheel

cylinders than at the front. They work smoothly and progressively and are entirely unobtrusive. First Corvairs had a "two-stroke" ratcheting handbrake that usually took a couple of yanks to set and was released by a separate control. Since the Powerglide has no Park device, it is imperative that the handbrake be effective, and this one certainly was. But it was subject to specific sales ridicule from Ford, and also caused a certain amount of trouble — staying on when it wasn't supposed to. A conventional pistol-grip handbrake has replaced it. Powerglide owners should be sure it stays properly adjusted.

#### NOISE (OR LACK THEREOF)

The Corvair is so quiet (an outstanding achievement for an air-cooled machine) that the funny noises of the heater system come in for more comment than any others. The intermittent firing-up in the combustion chamber sounds, depending on your point of view, like anything from a distant jet turning on its afterburner to something anatomical. Revving the engine past peak rpm produces a shriek that comes on abruptly, unlike the growing whistle of a VW. The engine is otherwise nearly silent, and always smooth. From outside the car there is some engine noise. It is very different in character from conventional domestics but lower in volume than high-power V8's, whether at idle or at speed.

#### ENTRY AND SEATING

The attractively thin doors open wide and are held open firmly by an ingenious coil spring and cam arrangement visible between the doors and pillars. Though wide, the door openings are only 33 1/4 inches tall, being captured between the low roof line and the bulky door sills. The latter are 5 inches wide and 5 1/2 inches above the floor pan, so getting in is a matter of insinuating oneself. Foot entry clearance is minimal, varying with seat adjustment from 10 1/2 to 13 1/2 inches between the corner of the front seat cushion and the door pillar. The extreme slant of the rear pillar caught at least one unsuspecting passenger right on the side of her head as she got in. Older people unanimously volunteer comments on the difficulty of entry and exit. As someone said of the same difficulty with his Porsche, "You either hate it or convince yourself you're staying young." With flat seats only 10 3/4 inches above the floor (11 1/4 rear) and about 19 off the ground level, you find yourself looking up at many cars once renowned for their low build.

Lanky drivers are not apt to feel too much at home in a Corvair. The flat seat suggests a legs-outstretched position yet the "bent" distance from backrest to accelerator pedal is a mere 39 inches. Because the 16-inch-diameter steering wheel clears the seat cushion by only 5 1/4 inches, jacking up the front of the seat with spacers to achieve thigh support is limited to an inch at most. The seat backs are rather erect in the stock position, and such a modification would also take some weight off the end of one's spine and slightly increase the distance from back rest to steering wheel. Chevrolet has for years featured a steering wheel position that is  
(Text continued on page 96 technical data overleaf)





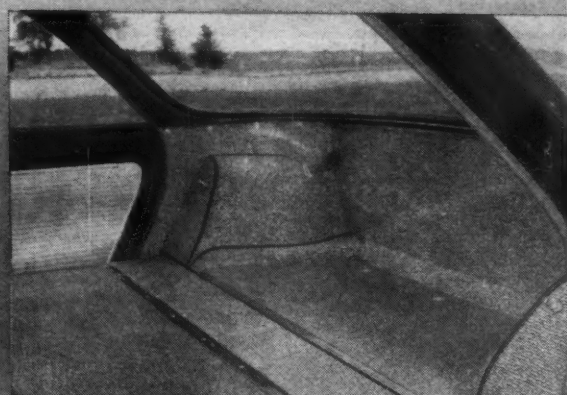
Slim, simple doors open up wide but opening is too short for frequent bouncing in and out. Later models than this have gaudier door panels.



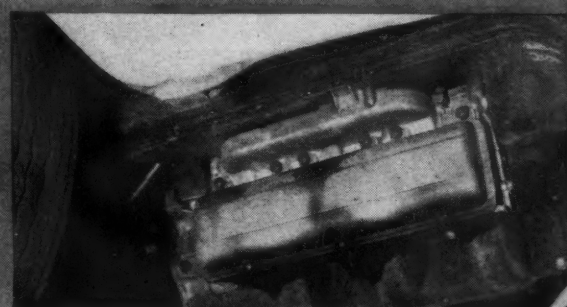
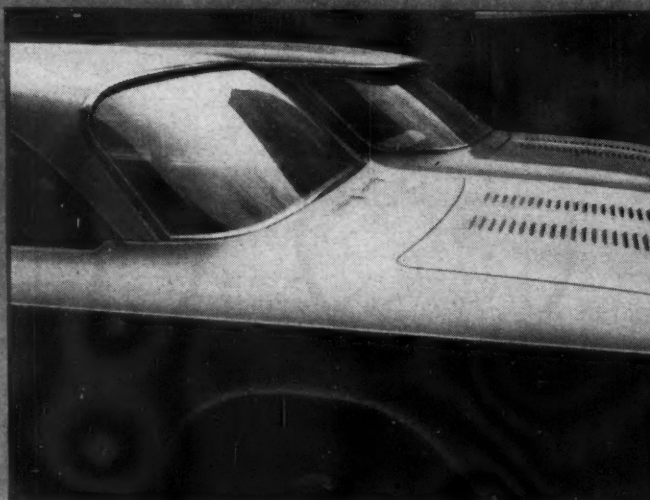
One of first "kits" speeds warm-up, has "Summer" and "Winter" positions.



Factory's option of dummy grille bars keeps your neighbors guessing. Coupe differs but slightly from sedan, yet enjoys pleasant contrast.



Folding rear seat, optional at introduction, more than doubles usable trunk capacity and is now a standard fitting.

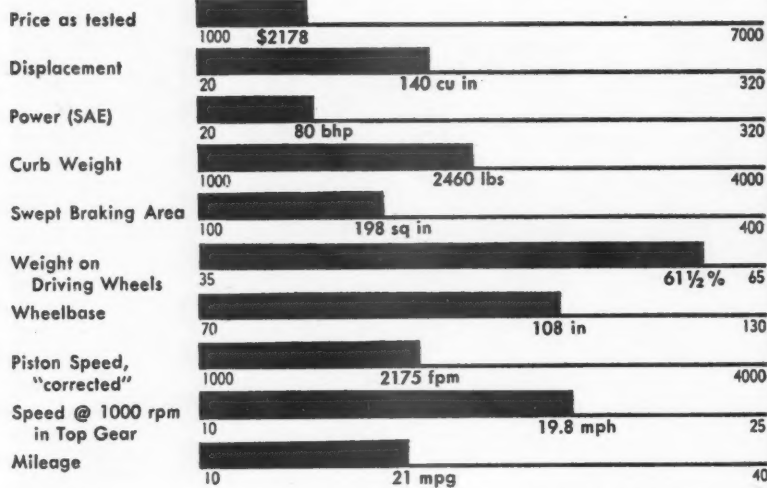


Valve covers are easily seen under rear fenders but don't invite much in the way of do-it-yourself home maintenance.

Corvair's styling, technical variety have made a big splash in the motoring press (SCI, Nov. '59, Jan., Apr., May '60) but not in sales.



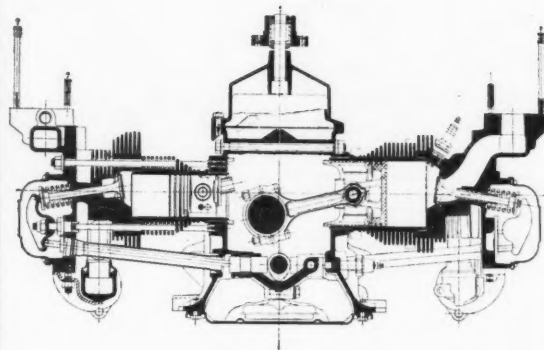
# Road Research Report: CORVAIR



Manufacturer:

Chevrolet Division

General Motors Corporation  
Detroit 2, Michigan



Normally, engines are shown 1/8 scale but due to space limitations, this cross-section of Corvair engine is 1/10 scale.

## ENGINE:

Displacement .....139.6 cu in, 2287 cc  
Dimensions .....Six cyl, 3.375 x 2.60 in  
Compression Ratio .....8.0 to one  
Power (SAE) .....80 bhp @ 4400 rpm  
Torque .....125 lb-ft @ 2400 rpm  
Usable rpm Range .....600-4800 rpm  
Piston Speed  $\div \sqrt{s/b}$   
@ rated power .....2175 ft/min  
Fuel Recommended .....Regular  
Mileage .....19-23 mpg  
Range .....210-250 miles

## CHASSIS:

Wheelbase .....108 in  
Tread, F, R .....54 in  
Length .....180 in  
Suspension: F, ind., coil, wishbones; R, ind., swing axle, coil, trailing wishbone.  
Turns to Full Lock .....2½  
Tire Size .....6.50 x 13  
Swept Braking Area-drum .....198 sq in  
Curb Weight (full tank) .....2460 lbs  
Percentage on Driving Wheels .....61½ %  
Test Weight .....2640 lbs

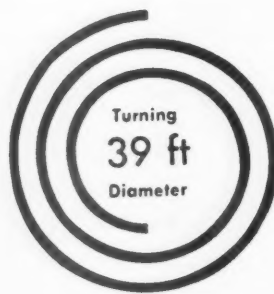
## DRIVE TRAIN:

Gear	Rev	Synchro?	Ratio	Step	Overall	Mph per 1000 rpm
		No	3.65		12.99	5.4
1st		No	3.22	75%	11.44	6.1
2nd		Yes	1.84	84%	6.54	10.8
3rd		Yes	1.00		3.55	19.8
Rev		Auto	1.82		6.47	10.9
L		Auto	1.82	82%	6.47	10.9
D		Auto	1.00		3.55	19.8

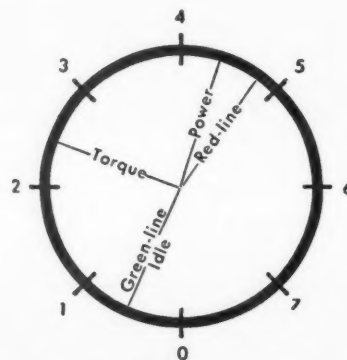
Torque converter ratio: 2.6 maximum at 1600 rpm.  
Final Drive Ratios: 3.55 to one std., 3.89 optional.



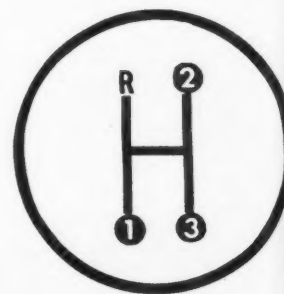
15/26 psi, F/R  
Steering Behavior



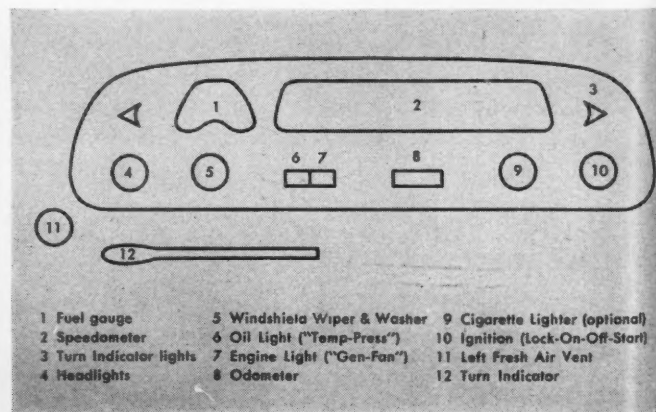
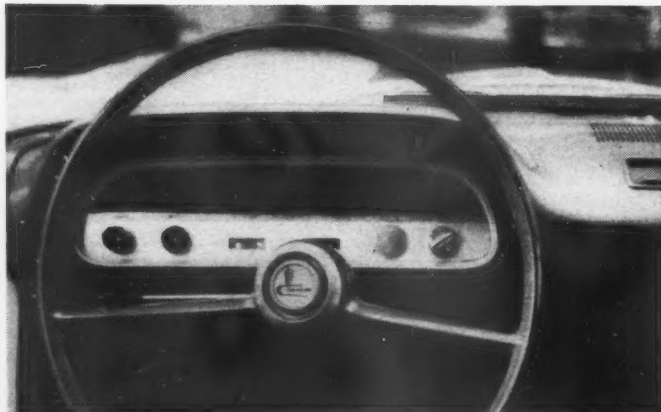
Turns to Full Lock



Engine Flexibility

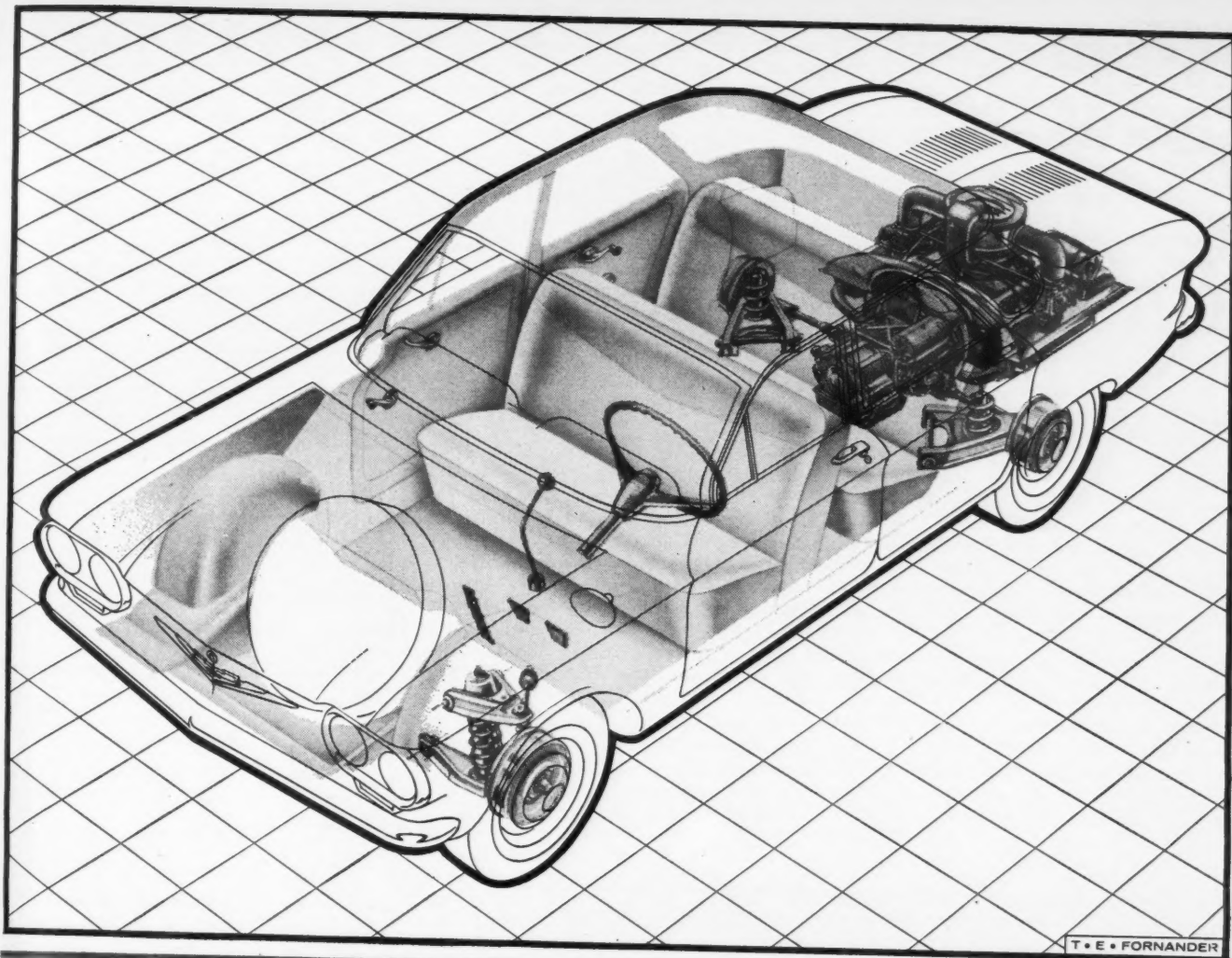


Shift Pattern

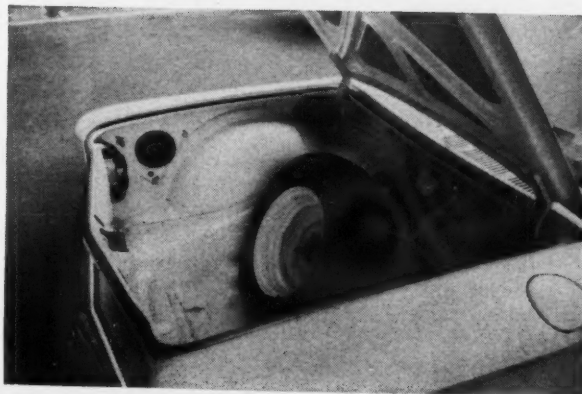
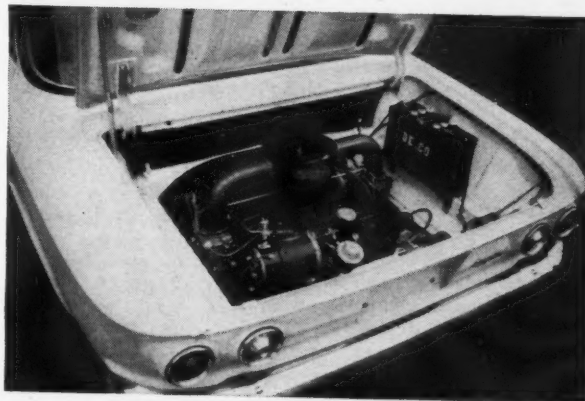
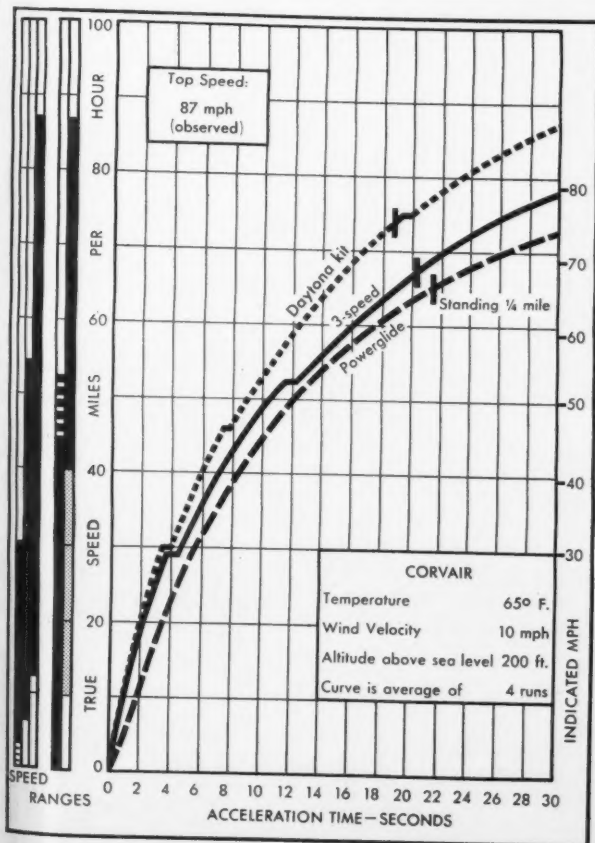


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|-------------------------|-----------------------------|---------------------------------|
| 1 Fuel gauge            | 5 Windshield Wiper & Washer | 9 Cigarette Lighter (optional)  |
| 2 Speedometer           | 6 Oil Light ("Temp-Press")  | 10 Ignition (Lock-On-Off-Start) |
| 3 Turn Indicator lights | 7 Engine Light ("Gen-Fan")  | 11 Left Fresh Air Vent          |
| 4 Headlights            | 8 Odometer                  | 12 Turn Indicator               |





T • E • FORNANDER





## RIVERSIDE

from page 59

### GURNEY'S LAST-MINUTE RIDE

Finally it was Gurney's turn. Earlier, he had been temporarily refused admittance to the pits because he had Saturday's pass. Once inside, he had a late physical exam, signed an entry blank on the spot and took one lap of practice. He was ready. But USAC representatives took one look at the recaps on Yaller's front wheels and pronounced them unfit. A hurried scramble, new tires, and Dan made third-fastest qualifying lap of 2:07.8. Driving very smoothly and giving Balchowsky's rapid Buick-engined special its best ride to date, (best racing lap, a record, 2:08.2), he looked like a sure bet to win after Drake dropped out. His steady lead with racing laps of 2:11 appeared unbeatable until the harmonic balancer let go on the 39th lap, stopping the car at turn five. Disconsolately, Dan watched Shelby sweep past, never to be headed for the lead. The crowd's cheers for the home-town favorite were Dan's only reward.

### MILES AND THE RS-60

As Shelby drove steadily, cautiously, Ken Miles began to push the Bob Estes-Otto Zipper RS-60 Porsche deeper into contention. Lloyd Ruby, in the Micro-Lube 450S Maserati, had been trailing Shelby, automatically gaining positions as others faltered. Finally in second place, he was all that stood between Miles and Shelby. In the 50th lap the Maser's engine came unglued at turn four and Ruby was out, placing Miles in second spot. Passing Shelby on lap 54 put Miles on the same lap and gaining. But with only 12 laps to go, Miles's closest was 72 seconds behind the super-cautious Shelby. The ride earned Miles \$125.

That Miles was delighted with his new mount is an understatement. Unlike the RSK in which he campaigned so successfully last season, the "60" is vice-free. Four additional inches in the wheelbase have improved stability to the point where much higher lap speeds are made possible by faster, easier cornering. Having ridden several laps around Riverside with Miles in the RSK, this writer can testify that it was no easy task to horse the skittish Porsche through the corners without losing it. "No more hanging out on the ragged edge with this car," said co-owner Zipper before the race, and results proved him correct.

The tragedy that struck Count Pedro von Dory on the 59th lap will probably remain one of the inexplicable mysteries of racing. Although nearly four laps behind Shelby, von Dory passed the leader at turn four, a gentle S-bend to the right. He never made the bend. Plunging straight over the shallow embankment to the left of the course at well over 100 mph, the car went end for end, throwing the Argentine auto dealer to his death.

### THOSE FALTERING SCARABS

Two of the three Scarabs extant were

primed and ready Sunday morning. But when Lance Reventlow climbed behind the wheel of his "borrowed" Meister Brauser entry, his best qualifying time was 2:18.69, at which point the main bearings became very tired and the car was retired for the day. Augie Pabst, in No. 1 Scarab, turned 2:13.8 for a slow qualification. Once started he was never in serious contention and went out very early in the running with differential trouble.

Third-place finisher was Pete Lovely driving Jack Nethercutt's beautifully-prepared three-liter Ferrari. Nethercutt, never noted for his hard driving, won the consolation event, later turning the car over to Lovely who gave it a steady, solid ride, moving up in standings largely through default.

Rounding out the 16 finishers—among the 37 starters—were Dick Morgensen, three-liter Ferrari; Russell Cowles, three-liter Ferrari; Brabham; Bill Dixon, Maserati 300S; Don Wester, Porsche RS; D. D. Michelmor, Porsche RS; Rick Lewis, Chevrolet Special; Alan Connell, 4.1 Ferrari; Jay Chamberlain, Lotus Mk. 15; Jim Chaffee, Devin-Chevrolet; Jack Eubank, 4.5-liter Talbot; Carlyle Blackwell, D-Jaguar; and Bob Challman, twin-cam MG-Lotus.

Saturday's amateur events brought the first full-scale Formula Junior race to the West Coast. Their popularity with the spectators was enthusiastic and immediate. The class is here to stay. Intriguing was the way in which J. P. Kunstle's Stanguellini was able to stay ahead of George Beavis's non-Junior Offenhauser-powered Formula 2 car—despite the fact that Beavis was clocking 128 mph through the traps and Kunstle was only turning 114! And that's the way they finished, with Ed Freutel in another Stanguellini for 3rd.

In Sunday's Junior race, Beavis dropped out on the first lap and Texan Jim Hall (Carroll Shelby's business associate) quickly moved his very fast Elva-DKW into an unchallenged lead after passing Kunstle on the first lap, and thus repeated his Sebring win. First three finishers were Hall, Kunstle and Freutel.

Saturday's production Class G, H, I event found Jack Rebney, Alfa Giulietta Spyder, winning G; Jim Honeter's MG-TF first in H; and Hud Stephenson's Fiat-Abarth Spyder victorious in Class I. The production Class F race went to Ed Barker's 1600 Normal Porsche Speedster.

In the Class D and E eight-lap go, Dan Parkinson's Healey 3000 won while Class E victor was R. W. Kastner in a TR-3. Among the hot Class B Corvettes, Vince Mayell was flagged home first. Class C, running in conjunction, was taken by Peter Culkin in a 300SL.

Frank Monise, Lotus Mk. XI, romped home free in the under-1100 cc modified. The larger modifieds, in another eight-lapper, were paced by Dick Morgensen's Ferrari TR, followed by Pete Woods in a Devin SS Corvette and Max Balchowsky in his formidable Old Yaller Mk. II.

With two major newspaper-promoted events per year now firmly established in the Los Angeles area, sports car racing has come to the masses—and they like it. There'll be more.

—WT

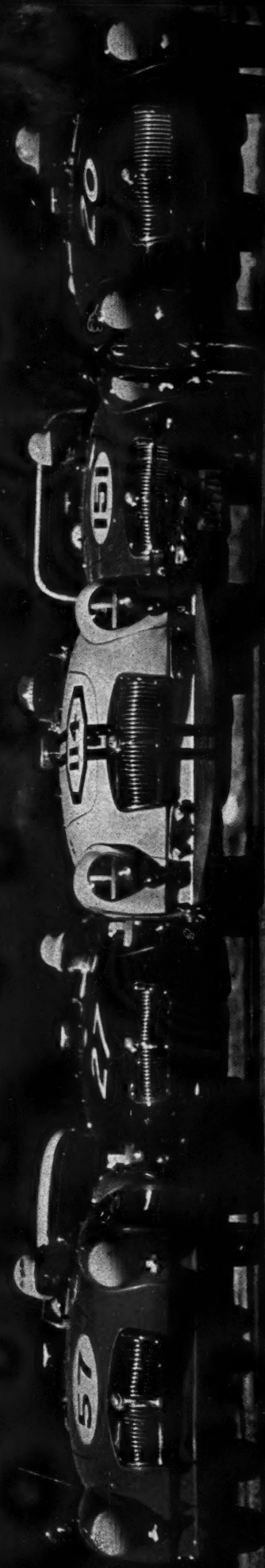
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As the Formula 1 Scarab finally jells — into a profoundly exciting race car — SCI Contributing Editor Griff Borgeson quizzes its constructor, Lance Reventlow, on racing of today and tomorrow. For further views in the same vein see page 27, March, 1960 SCI.

*G.B. What do you think about the new 1 1/2-liter Formula for 1961? Will smaller G.P. cars really be safer, as the F.I.A. hopes?*

L.R. I think the whole idea of changing Formulas is good because it does promote change in motor racing. The classic example is Indianapolis, which is stagnating terribly under just one Formula. But I don't think the idea of making engines smaller to make cars safer is very clever. It's obviously thought up by men who know very little, practically, about racing. The car that's safe is one that has an excess of power; if you do get it sideways you can stamp your foot on it and save the bacon. The car that's light, with power, can be pulled out of a lot of jams. The car that's heavy and short on power can't.

But racing is a spectacle. It's not supposed to be safe. If the F.I.A. wants safe racing, they ought to limit it to tanks. Put everybody in padded chambers inside the tanks, install governors, disarm the cannons on top and then we can have safe racing. But I never really thought that was the point of it.

Also the 1 1/2-liter Formula will be less attractive to spectators because the cars will be less powerful, quieter. I'm quite sure that the 1500 cars will eventually go faster than the 2500's because that's the history of motor racing. They thought the 2 1/2's would never go as fast as the 4 1/2's and that the 4 1/2's would never catch up with the blown 3-liters, but they were wrong in each case. I think it would still be a lot more interesting to see a V16 Auto Union going around a course than a 2 1/2-liter Cooper, though the Cooper could probably lap a lot faster.

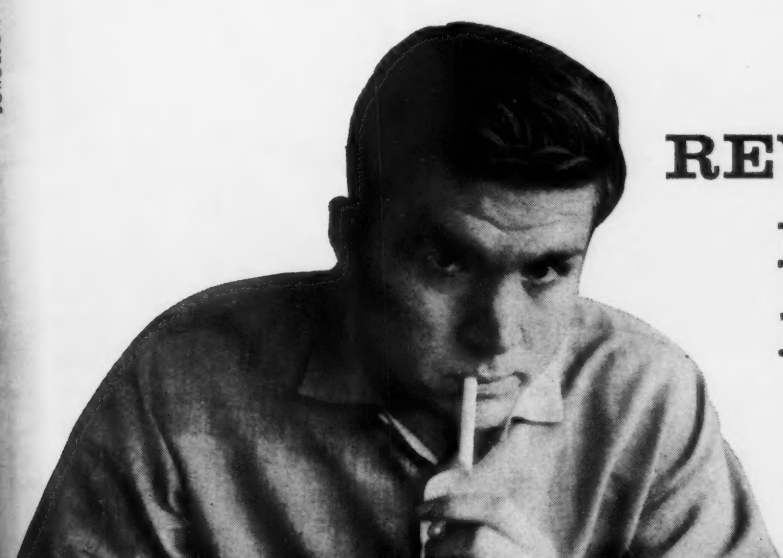
*G.B. What about engines? What will this new Formula produce?*

L.R. It's obviously going to be a lot more expensive to build a 1500 with power than a 3-liter with power. It's naive to say that this is a Formula designed to save money. The only way to get high power from small displacement is by going to 12 or 16 cylinders, and I don't think anybody but Mercedes or Ferrari would try that. Coventry Climax might make a 1500 out of its 2500 V8 but that involves carrying a lot of extra weight. It's so expensive that I don't see Maserati doing it. They had one very bad experience with multi-cylinders in that 2 1/2-liter V12 back in '57. We saw them revving it over 11,000 on the test bench, turning out plenty of power. Then they put it in a car. It had gobs of horses from 9000 on up but with all the empty space under the curve below that, it was undriveable. That's a problem with multi-cylinders, while a four has the goods low down. Our engine now has a 3000-rev range of solid power, and we have a 1 1/2 version in the works with a shorter block and stroke. It should be quite a bit lighter.

*G.B. Will the minimum weight rule help you out at all in '61?*

L.R. The idea of a minimum weight is absolutely preposterous in my eyes. I think it will help in one sense, in that some manufacturers will only have to build a new engine and not a new chassis. The existing F.1 chassis is pretty close to the 1100-pound minimum; it averages around 1300. Since you're putting a little less horsepower into it you can lighten some of your other parts: transmission, differential, etc. You can't say what the competition's likely to do, but I imagine most builders will stick to what they have now — just pruning down on engine size and weight.

*(Continued on next page)*



## REVENTLOW: READY TO RACE

COOGAN

*G.B. Can this new Formula do any good for G.P. racing? It sounds pretty bleak so far.*

L.R. It may well bring in some manufacturers who weren't in G.P. racing before. That's always good for the sport. I think Borgward, Porsche, maybe Facel Vega and a lot of English special-builders with 1500 Climaxes lying around will build F.1 cars. Right now there's a limited number of G.P. seats available, and this influx of new cars could bring in fresh talent. That in itself might be dangerous, on the other hand.

*G.B. Moss and others have liberally criticized the F.I.A. recently. What do you think of their setup?*

L.R. I think it's a shame that countries that don't race and don't like racing should have a say in what countries that do race should do. For example Switzerland, which has banned motor racing, has a vote equal to Britain, which produces most of the good cars and good drivers. Absolutely ridiculous. I think the F.I.A. is suffering from senility. They'd like to see straight-sixteen blown 1500's with straight-axle chassis, slab sides and horseshoe radiators racing. Unfortunately that's not progress.

The way to determine a Formula — if there's to be a Formula — is to have representatives from three distinct groups: the drivers, the car-builders, and those countries that actually do go racing. I think we'd get something done then. Everybody would like to stagnate and not spend any more money. That would be undesirable.

Also the Formula change should be announced several years ahead of time. If it's to run for ten years, for example, I think they should announce the next one at the five-year point. It's taken us two years to make a car for this present Formula, and it's a commensurate problem for most of the others except for those like Ferrari who have a one-man band: their own foundry, machine shops, heat-treat, everything. But for the average manufacturer — Cooper, Lotus, me, Maserati — it's still a good three-year project to get the car going right.

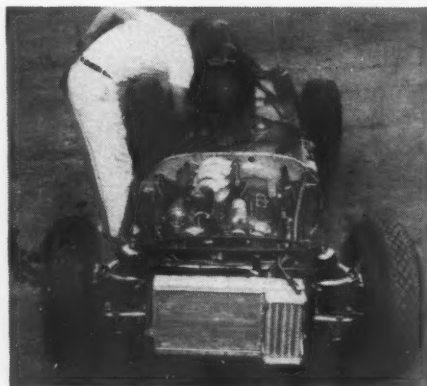
At this point the F.I.A. has absolutely throttled sports car racing with its high windshields and trunks. The next thing they'll do on sports cars is make you have power windows. It's obvious that the C.S.I. wants to eliminate the sports-racing car in favor of the G.T. or G.P. car. I'm more or less in favor of that because I've always felt that the sports-racing car was a bastard creation. You either have a racing car or a road car. A car that's suitable for use on the highway isn't a true race car. This clamping down on sports cars during the last few years has removed a good training ground for the young driver. I think the 1500 or two-liter sports car is the ideal training vehicle.

I think the only good thing the F.I.A. has done in recent years is Formula Junior. That's promoted a hell of a lot of interest in motor racing. It's going to be more interesting than Formula 3 because there are a lot of different cars — Elvas, Stanguellinis, Taraschis, DKW's, etc. — that are evenly matched. Half the interest of the crowd is to see different cars as well as different drivers. This Formula will finally train some young drivers.

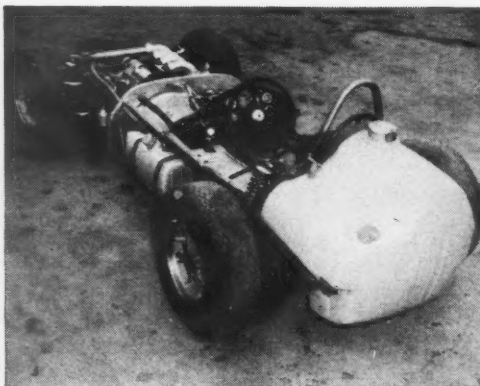
*G.B. What kind of a G.P. Formula would you be most interested in?*

L.R. I'd personally like to see it go either unlimited or to three liters, both on gas. I think three liters would be about the optimum with a gasoline engine. A blown eight-liter — or some such — is so heavy and complex that it destroys the advantages the extra power gives you. Plus you're stopping every ten minutes for gas. I'm sure that with a little redesign for gasoline America's three-liter engine — the Offy — would do pretty well.

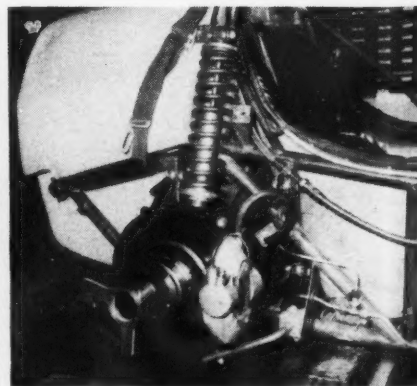
And I am in favor of gas. It's too easy to get horsepower out of an alcohol engine; there are too many problems you don't have. In this sport there is that rationalization of improving the breed, and you're certainly not improving the breed by making better alcohol engines. —GB



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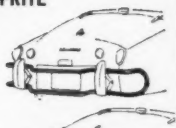
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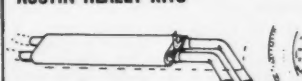
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Very similar to the now defunct XK SS, the new Jaguar competition machine utilizes the older D-Type front suspension with new rear set-up.



Shyly peeking out from under the sleek stern, the lower arms of the new independent rear suspension attest to car's improved roadholding.



Reason for the "Rivet" nickname is easily understood after looking at this close-up cockpit shot. All-enveloping glass meets F.I.A. specs.

► It has now become traditional for the organizers of the Le Mans 24-Hour race to set aside one day in April, two full months before race time, for practice. This year April 9th saw considerable activity on the famous French circuit which was highlighted by the initial public appearance of the new Jaguar sports-racing car that the Coventry factory designed and built for Briggs Cunningham.

The new Jaguar has no official factory designation as this is written, and it is not known as the E-Type. Coventry has bent over backwards to make it clear that the new car is by no means an official factory entry—rather a car for Cunningham to which the Jaguar factory has lent its full support. Alfred Momo, Cunningham's chief engineer, has spent considerable time on the project, so the Jaguar factory has a right to claim that this is not exactly its own exclusive operation.

The "Rivet", as Cunningham laughingly dubs it, is every bit as beautiful to look at as its predecessor, the D-Type Jag. Aerodynamically it approaches perfection, despite the full-width windshield. The 3-liter six-cylinder engine has a bore and stroke of 85 x 88 mm, uses an all-alloy block and at Le Mans was equipped with Lucas fuel injection. Power output is quoted at 300 bhp at 6400 rpm. At no time during the trials was the engine uncovered nor was the rear suspension clearly visible to bystanders, but it's known that the front suspension is straightforward D-Type, while the rear suspension is now fully independent. The half-shaft serves as the upper wishbone while a second lower wishbone is also fitted. The two elements are not parallel. Dual coil spring and shock absorber units are fitted at the rear, i.e., two on each side. Disc brakes at the rear are inboard.

The Le Mans trial day wasn't the first time that the car has been driven fast (as was the case with the new Ferrari) for the Jaguar has been under test now for several months with factory driver Norman Dewis patiently shaking the bugs out. 170 pounds lighter than the D-Type, the "Rivet" has virtually no steel in the body. The stressed aluminum "Unibody" has been stolen from the Chrysler Corporation (as one British technical journalist laughingly put it) with the large number of rivets throughout the surface of the body indicating its monocoque construction. As this is written no body specs are available but it is known that the wheelbase is longer than the D-Type and the track slightly narrower. A normal four-speed D-Type gearbox is used.

Performance of the Jaguar during the first two hours of the trial day was impressive. The Ferraris were not yet in their stride then, and the unpainted, silver "Rivet" was obviously very fast, finally turning a 4:08 lap with Walt Hansgen at the wheel. Ferrari drivers reported that it "walked away" from them on the straight, Phil Hill saying there was just nothing he could do about it. Shortly thereafter, however, the Jaguar retired halfway down the Mulsanne straight with a broken connecting rod, but in all fairness to the new engine, it was reported that the driver (not Hansgen) missed a shift and overrevved. Everyone was very sorry to see it retire, for there had not been a full opportunity for a fair comparison with the Ferrari. It's fairly certain that the car will appear at Le Mans, though Jaguar officials on hand were not making any promises. But it would seem that if they've gone this far, they can't very well stay away. On the whole, handling of the car is good and with

*(Continued overleaf)*

## BETS ARE JUST NOT HEALTHY AT LE MANS

by Jesse Alexander







PAST AND PRESENT: The famous 300 SL gullwing coupe and its improved replacement, the fabulous 300 SL Roadster.

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(Continued from page 72)

Hansgen and Gurney teamed up on it (as is presently rumored due to the latter's unhappiness with the Camoradi stable) the new Jaguar will be exciting to watch at Le Mans.

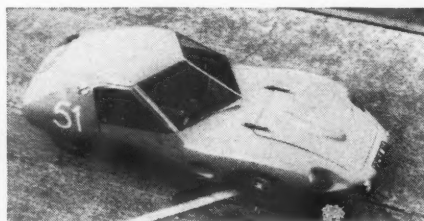
Scuderia Ferrari brought two sports-racing cars to Le Mans on April 9th, one with a brand-new short-wheelbase chassis, fitted with independent rear suspension—the dual-wishbone layout, like that on the Formula 1 car. It is reported that the new machine is 220 pounds lighter than the normal car. A five-speed gearbox is standard, and for Le Mans the robust and reliable 12-cylinder single-overhead-camshaft Testa Rossa engine will be fitted, despite the fact that the V6 Dino will also easily slide into the engine compartment. Disc brakes are, of course, standard. It is not yet known whether the full Ferrari team at Le Mans will be equipped with the new car, for the second vehicle on hand at the April trials was a conventional Testa Rossa.

All of the drivers expressed enthusiasm for the new short-chassis car, though Phil Hill had a bad "moment" when flat-out under the Dunlop bridge, having to use up all the road to negotiate the corner. Phil eventually made fastest lap in this car during the trials, setting a 4:01.4 (compared to the official lap record of Hawthorn which still stands at 3:58.9). Getting down towards Phil's time was Cliff Allison, who had only a few laps but nevertheless turned a 4:03. On hand also at Le Mans for the 1960 race and driving for Ferrari will be Richie Ginther (who drove for several hours in 1958 until a water pump broke). Richie turned a 4:08 during the trials but still had not learned his precise braking points; it was clear that his times could easily approach—if not equal—those of Allison and Hill.

In fifth gear the Ferraris are getting 6900 rpm at the end of the Mulsanne straight (7400 rpm in fourth)—and it's felt that with a slightly lower gear ratio, top-gear revs will go up. It was interesting to note that as the day progressed and as the engines were broken in on the Ferraris, their maximum rpm increased by several hundred revs (After the first hour of training, Cliff Allison and Phil Hill were most unhappy with the car's performance, but of course they were not encouraged by the fact that the Jaguar sailed by them on several occasions). The Ferraris will be equipped with the Dunlop "D10" racing tire with an expected race life of exactly 12 hours for one set. A set of "D9" Grand Prix tires will probably be on hand in the pits for use if the race turns into a downpour as it did in 1958. The "D9" tire gives better roadholding at the price of higher temperatures and higher wear.

74/SPORTS CARS ILLUSTRATED/JULY 1960

Briggs Cunningham is probably betting most of his money on a good showing for his team of Chevrolet Corvettes, which for 3000-pound automobiles were doing impressive things at Le Mans. (So exciting was the car to watch on certain sections of the course, in fact, that it alarmed the commissaires, who were sure that the suspension system was about to fall off onto the track, and sent word back to the Cunningham pit that the car looked unsafe.) Best time for the 4.6-liter Corvette was 4:28.3, and Momo told me that during the race the Chevrolets would be allowed to run no faster than 4:40, in an effort to make the car last. Brake wear could be a problem, though the interesting new 1960 special brakes are notably better. Drum wear is ap-



F. I. A. windshield requirements have bred some interesting forms. This one, on a DB coupe, solves the problem by using a deep, raked "V" shape.



America's white hope at Le Mans. One of the Corvette coupes entered by Briggs Cunningham turns a fast one during the one-day practice period.

parently not high, and the fan inside the drum obviously helps cooling.

"Momo mods" to his 1960 Le Mans Corvettes include the following: a much-needed bucket seat with lap strap, adjustable steering column to suit different drivers, instruments that are more legible and that do not reflect onto the windshield, a roll bar, and a hard-top that has been bolted securely so that it cannot easily be removed. Mechanical alterations include an electrically-driven pump supplying the oil radiator. A similar unit has been installed in the rear axle to keep its temperature down, though as this is written it is not known if the last-mentioned item will be allowed under the regulations.

It's fair to say that both Cunningham and Momo were pleased with the initial performance of the Corvette at Le Mans, especially in view of the poor Sebring showing. The engine of the practice car has 25 less horsepower than the engines which will be fitted to the team cars. The fuel-injected powerplants will use the rare aluminum cylinder heads. Indeed, it would be great if Cunningham can pull off a Le Mans win in a Chevrolet Corvette in 1960, but it's almost too much to hope for. At Le Mans, however, practically anyone can win and once the first few hours have passed, he who has the lightest foot is very often the one to enter the winner's circle.

For 1960, there will be at least one Aston Martin DBR1 (last year's winning car), this year run privately and driven by Bailey and Fairman. A DB4GT is also expected to be on hand, likewise privately run but factory-supported. Graham Whitehead will probably forsake Aston Martin in 1960 for a G.T. Ferrari.

(Continued on page 76)



The Triumph Team will consist of two of these fiberglass-bodied cars with twin-cam engines.



# LOTUS



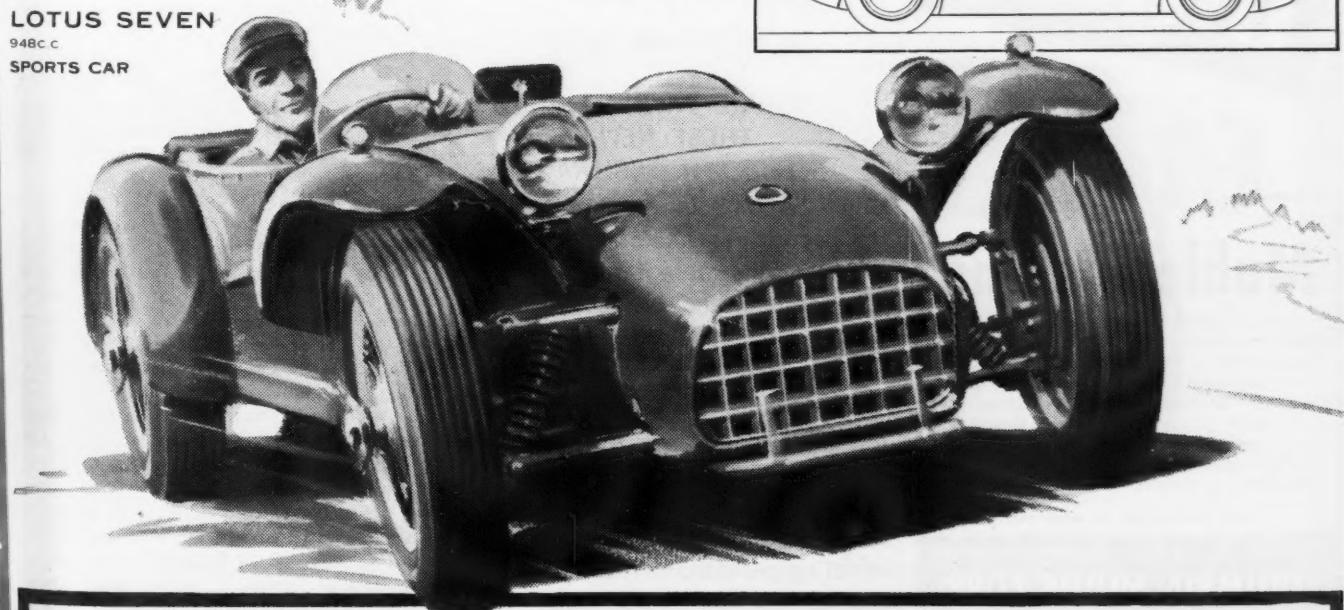
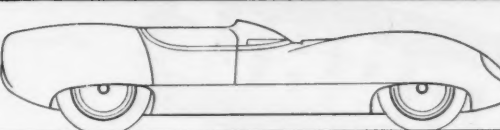
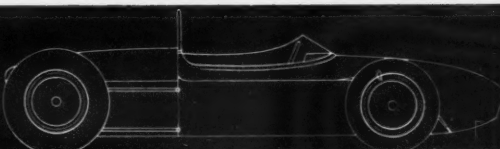
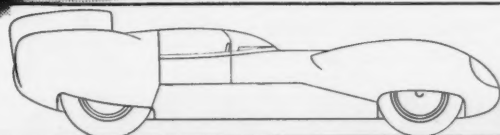
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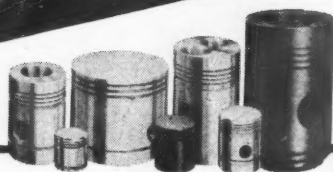
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## LE MANS

from page 74

There will be at least a half-dozen G.T. Berlinetta Ferraris in this year's race. Maranello brought a special factory G.T. car to the practice session, fitted with the Testa Rossa engine (with six double-throat downdraft Webers) and a special exhaust system. Wolfgang Seidel turned a 4:23 lap in this particular Berlinetta. One of these G.T. Ferraris could also easily win the race, though they're not as fast as the Corvette on the straightaway.

The only other interesting cars to take part in the Le Mans trials were a pair of special twin-cam Triumphs, known as the "TRS", with engines virtually the same as last year's twin-cam. Displacement is 1985 cc, and body construction is fiberglass. Drivers for 1960 include Sanderson, Becquart, Rothschild, Leston, Bolton and Ballisat.

In summing up, I reckon that the 3-liter Ferrari with Hill and Allison teamed up has as good a chance as any car to win the 1960 race. This new short-chassis weapon (designed in fact for the Targa Florio) is powerful, rugged and handles. After the Ferrari, my money falls on the Porsche, and failing that a G.T. Ferrari. But my real hopes are on the Chevrolet Corvette, though I fear that it won't be fast enough, and that brake wear may be a problem. As is pointed out earlier, anything can happen at Le Mans; it's a race where bets are just not healthy and the Cunningham Jaguar may yet surprise us all.

-JLA

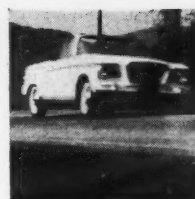
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## TESTS and TRACK REPORTS

August's Road Research Report will spotlight Triumph's new sporting cars: the Herald Coupe and Convertible, which offer remarkable handling-per-dollar. There's a Road Test on the Volvo 122S sedan, and a Track Report on the superb 750 Osca that won the Index prize at Sebring.



## ROAD TEST CONVERTIBLE LARK

from page 47

in its steering and would not have been enjoyable to drive on iced mountain roads. At right or left full lock the tires rubbed against the chassis with noisy protest. The throttle pedal spring is absurdly stiff and the spring load against kickdown takes all you've got. The pedal is located well to the left of the gearbox tunnel almost on the centerline of the driver's body . . . not the handiest position.

The three-speed torque converter transmission has good and bad points. On the good side it is quiet and shifts smoothly and fast. On the other side it takes about four seconds by stopwatch for any significant amount of power to reach the driving wheels when digging out from standstill. This is true in both Drive and Low ranges; over the standing quarter mile we were able to gain only .4 second by starting in Low.

The car's handling generally is quite good, as you might expect of a sway-barred, decently-shocked, short-wheelbase car. An interesting feature here is its breakaway characteristic. It sticks *very* well in the turns. While most cars break away much earlier at the rear than at the front, our Lark convert would merely go into a very gradual outward slide. Its cornering balance is good.

The car's ride is delightful on all normal surfaces and at all reasonable cruising speeds. It's skittery on washboard and from about 90 mph upward it becomes light and hobby-horses palpably but not disturbingly. The car is smooth and exceptionally quiet even on rough (not washboard) roads. The engine is quiet, its exhaust note authoritative.

The convertible top functions easily and conveniently. To lower the vinyl top two large, easily-gripped toggles on the top header bar are released. A lever under the instrument panel is moved and humming electric motors stow the top neatly in a matter of seconds. A vinyl snap-on boot is provided for covering the top-well. The top is erected just as quickly and easily and no unusual gymnastics are required to secure it with the toggles. On our test car a few thousandths of an inch of daylight showed between the top's side rails and the aluminum strips that carry rubber-channel window seals. No wind came through these slight gaps; they were one of the few instances of less-than-fine fit and finish throughout the vehicle.

As we've said, this is a compact-dimensioned big car. It possesses none of the relative austerity that marks most of the compacts, instead it is rather luxurious and definitely *chic*. Priced as it is, it's a sensible choice for anyone who wants the handling ease of a compact, much more than typical compact performance, plus the pleasure of open-air motoring. It's a rugged, strongly-built vehicle that is spirited, untiring to drive and that draws admiring looks wherever it's seen.

-Griff Borgeson



# Portrait of a Champion!

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## LOZIER

from page 37

les Fiat agency and shipped west. Local Fiat supporters refused to believe that the big Italian racer, if properly prepared and handled, could actually be beaten by a converted passenger car. As a result, a 100-mile match race was arranged between the two cars, with the immortal Ralph De Palma elected to man the Fiat.

The race was run on the track at Playa del Rey in early 1911, and this time even the diehards were convinced. The Lozier led from gun to flag, walloped the big Italian special by 6½ laps, and smashed every existing world's competition record from 25 to 100 miles, regardless of power or class. Despite a stop for a tire change the Lozier averaged a startling 81 mph for the distance—on a one-mile track!

The first Indianapolis 500-mile race was run on Memorial Day, 1911. In the final stages of that event the battle for first place narrowed to a blazing duel between Harroun's specially-built Marmon Wasp and a stock Lozier driven by Ralph Mulford. The record book lists the Marmon as winner by a scant margin (both cars were on the same lap at the finish), but Lozier partisans have never believed it. Due to the less-than-perfect scoring operations—the electric tape broke a number of times during the race and hand timing had to be substituted—the final issue was clouded in doubt. Many observers believed the Lozier had been forced to complete 201 laps against the Marmon's 200, a count that concurred with the tally kept in the Lozier pit. Immediately following the race the Lozier company lodged an official protest with the Speedway committee, but no recognition of the claim was ever forthcoming. Among racing adherents, however, the controversy has cropped up many times through the years.

Obscured by the post-race dispute was the striking fact that even a second-place finish for the Lozier added up to a prodigious feat under the circumstances. The starting field of 40 cars included the best racing makes of two continents, yet only one of these—and that one a special creation designed expressly for the Indianapolis track—could match the pace of this American stock car. Actually the Lozier's running time was considerably faster than the Marmon's, but the factor of tire wear on the rough brick oval worked to the Lozier's disadvantage. To save weight the Marmon had been designed to carry only one man—it was, in fact, the only car in the race to dispense with the traditional riding mechanic. The stratagem worked out very well, for the Marmon changed only three tires throughout the race. The Lozier, with its heavier stock chassis carrying the weight of two men, required 14 tire changes. As usual, its mechanical performance was flawless—6½ hours at virtually full bore without missing a beat.

What made the Loziers so good? How could these production cars, chosen at random, so ably withstand the brutal stresses incurred in long-distance major

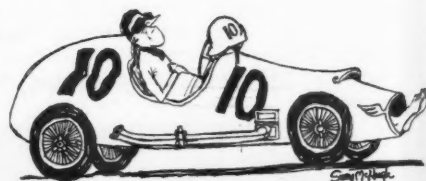
aces? At least part of the answer can be found in a brief anecdote concerning the lone surviving Type 46 Lozier engine.

Although some twenty Loziers of various persuasions are known to survive, the Type 46—Lozier's most famous racing model—was believed extinct. Then, a few years ago, Lozier devotee Don Colee was told of an alleged Lozier engine that was being used to power a Gardner-Denver air compressor in a remote California mining camp. Not only did investigation prove the lead well-founded—in itself a wonder of wonders—but the engine was revealed as being one of the supposedly non-existent Type 46's.

With purchase effected and the engine carted home Mr. Colee viewed his find with some misgivings. The old plant looked pretty rough, and its known history was hardly designed to inspire optimism. It had been used for many years with no air cleaner in a dust-laden atmosphere. Even worse, the pump for the circulating oil system had been removed, leaving the engine to rely on the small amount of oil kept in the crankcase, oil which certainly must have become very, very hot under peak loads. The degree of abuse the engine might have sustained in its original chassis—before being removed for its long mining camp service—was of course unknown.

Nonetheless, Mr. Colee (an old hand at such hopeless-looking chores) proceeded to tear the engine down for possible rebuilding. To say that he was astounded at his findings would be rash understatement. The cylinders showed practically no wear, the most in any cylinder being six thousandths of an inch. One connecting rod was loose and the valve stems were quite badly worn—otherwise the engine was near-perfect. Timing gears, main bearings, accessory drive bearings, camshafts, cam bearings, valve lifters, fan-drive assembly—all were virtually as new. In Mr. Colee's words, ". . . replacing any of these parts would have accomplished nothing." So the old engine was cleaned up, fitted with new sets of valves and piston rings, and repainted. Today, installed in a four-passenger Lozier sports chassis owned by David Gray, it is reported as being "virtually the same record-breaking powerhouse that it was nearly half a century ago."

Considerably more than forty years have passed since the last Lozier rolled from the factory. Like most of our fine old hand-built cars it was done in by the assembly line and by the ruthless price wars of the century's second decade. But the Lozier was indeed a remarkable car, a car that combined the factors of elegance, stamina and race-car performance to a degree unequaled in its time. —TLG





"Sent your entry in yet?"



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In addition, every contestant will receive an official full-color poster of the 1960 Le Mans 24-hour race.

**Here's all you have to do:** Write your idea in a letter or on a postcard (be sure to include your name and address) and mail it to the Ancient Age Sports Car Idea Contest, c/o Sports Cars Illustrated Magazine, Box #1117, Church St. Station, New York 8, N. Y. Tips will be screened by the editors of Sports Cars Illustrated.

**The more the merrier.** Send in as many ideas as you like. Entries must be postmarked no later



than July 4th. In case of duplicates, the earliest postmark takes priority. Winning tips will appear in a future issue of Sports Cars Illustrated. Participants must be over 21 years and reside in a state where this contest is permissible.

### Sample ideas like these can win you \$25!

*Dye an old shoe bag the color of your car interior and lock-stitch it to the back panel of the front seat. The individual compartments make excellent storage places for fragile objects.*

*When parking a Citroen DS 19, set the air-oil suspension to the car's highest level. This puts the bumpers as high as those of domestic cars.*

*Now step on it and send in those entries!*

**If you can find a better bourbon... buy it!**





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## SEBRING

from page 43

Friday morning we arrived in time for the start of the Formula Junior race. With all the two-cycle engines on the grid it was just a bit smoky! Cooper was most impressive, fast and smooth. Elvas look as if they are constantly going up, with noses higher than the rest of the car. All of them look good, but would be so much better on a small twisty circuit. Big airports just aren't right for little cars . . . nor for big ones.

It seemed to us that a lot of other people thought that way too. Where were the crowds this year? Grandstands were all but empty during practice days. How would it be for the race? Talked to a few people who informed us that there actually were vacancies at some of the motels around town right up until Friday. Unheard-of for Sebring in March! And this year they couldn't blame the weather.

Friday night we walked around town a bit looking for the cars. Ferraris sheltered in local Oldsmobile showroom, nothing exciting happening. Porsches out at fairgrounds, a little activity but still pretty relaxed atmosphere. Saw D.B. that rolled in afternoon. Roll bar held up well, fiberglass body didn't.

Saturday dawned a bit cloudy but no real threat of rain. Arrived at course early to beat crowd, found there wasn't much crowd to beat. Cloudiness turned to high fuzzy overcast by race time. Usual hoo-hah before race. High School band played, people milled around, photographers fought with officials. Alec Ulmann spoke a few words, same old script but with a new twist . . . no mention this time about drivers and cars from every country in the world. But this IS an international race, isn't it?

Mr. Ulmann also attempted to squelch any and all rumors that this was the swan song of the Sebring 12 hour. " . . . There will be a race next year, and it will be bigger and better . . . " A few people were heard to remark that it couldn't possibly be worse.

Almost 10:00 a.m. and people tried to get excited. Some actually did when a particularly interesting example of independent suspension sauntered by in front of the spectator area. Not everybody watches cars ALL the time.

The countdown, the run to the cars, smoke, noise, and the beginning of a twelve-hour grind.

It seems like a good idea at this time to bring up a few pertinent facts about this year's carnival. Why weren't the teams here? By now most people know it was because of conflicting contracts with oil companies. In Europe a factory and/or driver signs up with a tire or oil company, and if he wins, the company gains publicity. In this country, an oil company will sponsor the race itself. No matter who wins, the race was won using their product. Neither system can be considered superior to the other, it's just that they are not

compatible. Thus, Sebring 1960.

Ferrari has a contract with Shell, Amoco sponsors the race, so no factory-entered Ferraris. Porsche has a contract with B.P., so no official Porsches. Lotus has a contract with Esso, so no factory Lotuses. The problem was side-stepped in Porsche's case by making brand-new racing cars available to qualified purchasers, to be privately entered by them. So this race was won by good drivers in brand-new 1600 cc cars against good drivers in "used" 3 liter cars. Remember, twelve hours is a long time.

Another interesting facet of the race was the fact that the new short-wheelbase Ferraris were declared Sports rather than G.T. cars because of a complaint about their having disc brakes. So what did they do? They came in fourth, sixth, and seventh overall. They really are sports cars.

Back to the race. Stirling Moss stalled his Maserati on the line. The Corvettes moved out first but led for only a very short time. We moved over to Webster Turn to watch the first few laps while the cars were still bunched up. Within the first hour many cars showed signs of contact . . . with haybales, pylons, and other cars. Looked like pretty rough driving. Enthusiastic at any rate.

Trouble with Sebring, it's a long race. After the first few hours things settle down to a parade. There's an interesting dice now and again, but mostly it's a matter of making the car last for twelve hours. And some didn't.

Moss went fantastically fast as usual and teamed with Dan Gurney, led for seven hours. The Chuck Daigh-Richie Ginther Ferrari was never too far behind, but at about 5:30 the car showed signs of tiring. As Daigh came into the corners the Ferrari belched out huge clouds of smoke. By-stander Phil Hill remarked that the car would sometimes do that if over-revved on the downshift. A few laps later it retired for good. This put the Gendebien-Hermann Porsche in second spot, and put Moss in the Maserati to replace Gurney. Two laps later the Maser lost its gears. From then on the Gendebien-Hermann Porsche led, followed by a similar car driven by Holbert Schechter, and Fowler.

Twelve hours after the start, the checkered flag marked the end. Great relief. Usual madhouse in Victory Lane. Flash-guns, shouting, the big trophy, gold this year in honor of Amoco's 50th birthday and Sebring's tenth.

All over until next year. The big question seems to be, "Will there be another one next year?" Alec Ulmann says there will be. Why the doubt? Here are some considerations.

The event at Sebring is the only championship sports car race in this country. As such it is more than just a race, it is a pilgrimage and Alec Ulmann deserves some credit for providing this spectacle in the United States. But the spectators are drawn, like lemmings to the sea, and when they arrive they get gouged. They are welcomed by a barren wasteland, inadequate housing accommodations, and a high admission price. For ten more dollars they're allowed access to the paddock area, and if they have the price, they can sit on the roofs of the pits. Those pits that have roofs, that is.



Which brings up the next point. If the spectators are offered little for their money, the participants are offered even less. Pit facilities are extremely poor unless one gets a location close to the Jaguar tower. These are the pits with overhead cover, the rest being open to the elements. In addition, entrants have to contend with



A non-profit corporation established to promote and perpetuate the sport of karting on a national level. Membership is comprised of track owners, operators and promoters, kart owners and drivers, distributors and dealers, manufacturers and associated industries.

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#### A COMPREHENSIVE NATIONAL INSURANCE PROGRAM

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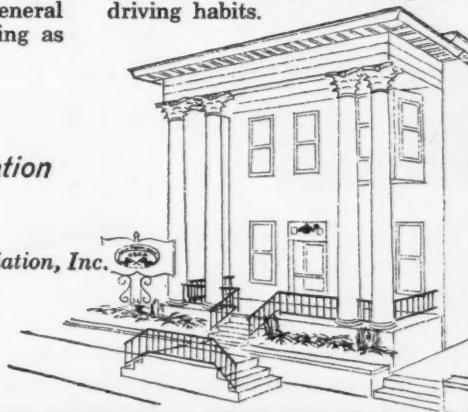
The program, including aid in establishment of desirable legislation, needed to secure general public acceptance of karting as a wholesome sport.

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#### OVERALL POSITIONS

POSITION	CAR NUMBER	DRIVERS	MAKE
1.	42	GENDEBIEN, HERMANN	PORSCHE
2.	44	HOLBERT, SCHECHTER, FOWLER	PORSCHE
3.	8	NETHERCUTT, LOVELY	FERRARI
4.	10	HUGUS, PABST	FERRARI
5.	17	REED, CONNELL	FERRARI
6.	12	STURGIS, DORY	FERRARI
7.	11	ARENTS, KIMBERLY	FERRARI
8.	16	SCARLATTI, SERENA	FERRARI
9.	72	SHEPPARD, DUNGAN	PORSCHE
10.	14	PUBLICCKER, MCCARTHY, CONSTANTINE	FERRARI

#### CLASS WINNERS

CLASS	CAR NUMBER	DRIVERS	MAKE
8G	54	VAN BEUREN, VELASQUEZ	ALFA ROMEO
9G	72	SHEPPARD, DUNGAN	PORSCHE
10G	31	DURBIN, GOLDMAN	ARNOLT BRISTOL
12G	16	SCARLATTI, SERENA	FERRARI
14G	6	HALL, FRITS	CORVETTE
55	63	BENTLEY, GORDON	OSCA
65	61	SPRINZEL, LUMKIN	SPRITE
75	58	VOGELE, ASHDOWN, ROTH	LOLA
95	42	GENDEBIEN, HERMANN	PORSCHE
125	8	NETHERCUTT, LOVELY	FERRARI

#### FASTEST LAP

CAR NUMBER	DRIVER	LAP NUMBER	TIME	MAKE
23	STIRLING MOSS	94	3:17.06	MASERATI

the aforementioned paddock spectators. And what did they get for playing their parts in the show? Not even trophies for all class winners.

As far as the course itself is concerned, it's certainly not the best the United States has to offer. Since the race is on the F.I.A. calendar, and considered by many to be THE sports car race of the year in this country, it stands to reason that we should play host at one of our better circuits.

In all probability the race will continue, but it will have to improve if it is to last. The lack of international representation at this year's event prompted someone to remark that it was the biggest SCCA National ever held in Florida.

Last but not least, it is necessary to drive through many Southern states famous for their law enforcement agencies to get to Sebring. You guessed it . . . we got stopped again on the way north. In South Carolina. The car in front of us slowed down and pulled halfway off the road. We passed, crossing halfway over the broken centerline. Looked in mirror. Cop. Heard beep-beep of horn, pulled over. Policeman emerged from car, looked, shook his head. Yep, same cop. Nice guy though. Said if we weren't such good friends he would have given us a ticket. Thanked him and went on to New York.

-DGT

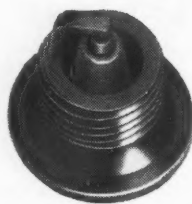
# To learn what's going on in your engine—



Many times a day, in the weeks before the Indianapolis "500," the "Cut Clean" sign tells a practicing driver to cut off ignition and coast in for a spark plug check that will play a vital

part in fine-tuning his powerful engine. It's a busy time for Champion Racing Engineers, as they assist in the careful analysis of hundreds of Champion spark plug firing ends.

## What these spark plug firing ends can tell you



**1. NORMAL** — Slight brown to grayish tan deposits mean spark plug heat range and other conditions are correct.



**2. CARBON FOULED** — Dry, sooty black deposits. If heat range is correct, may be caused by sticking choke, carburetor float level too high, clogged air cleaner, faulty breaker points, or weak coil or condenser.



**3. OIL FOULED** — Wet, oily deposits. May be caused by oil pumping past worn rings (if engine is past break-in period), porous vacuum booster pump diaphragm, or excessive valve-stem guide clearances.

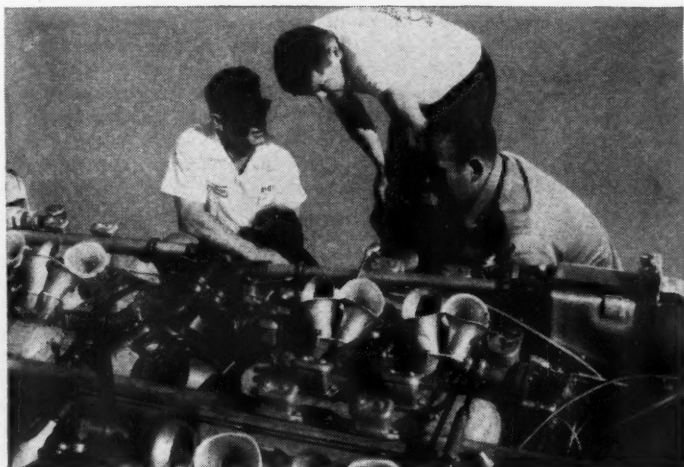


**4. OVERHEATED** — Insulator may be white, with all deposits burned away, or may appear "blistered." If heat range is correct, may be due to excessive knocking, ignition too far advanced, cooling system stoppages, sticking valves, or too-lean air/fuel mixture.



# "CUT CLEAN"

*It's a "trick of the trade" of engine experts at Indianapolis. Here's why this special spark plug check can tell you more about your engine than a thermometer can tell a doctor about your health...*



At Bonneville, Mickey Thompson, America's fastest driver (center), discusses spark plug readings with Champion Racing Engineer Dick Jones (left) and Chief Mechanic Fritz Voigt. Thompson even had his 32 Champions checked between the two laps of his record run. (Everything was OK, and no changes were made.)



Also at Bonneville, Champion Racing Engineer Jones worked with the crew of the Champion-sparked Austin-Healey Sprite that set 15 World's Records for endurance and speed. Here again, spark plug readings played an important part in properly tuning the engine.

It's mid-May at the Indianapolis Speedway. Pre-race activity is in full swing. In the pits, a mechanic chalks "CUT CLEAN" on a blackboard, holds it high. As his driver flashes by, he signals that he's seen the message. He runs one more lap. As the driver comes into the home-stretch, he puts his foot in it. He holds his engine under full load for a few seconds, then suddenly cuts off the ignition and coasts into the pits.

He has "cut clean." Mechanics pull the spark plugs and carefully examine the firing ends. They are looking for "signs" put there under conditions of full power and peak temperatures.

The spark plug's firing end is the meeting place of fuel, fire, temperature and pressure. It can tell the trained eye many things—about fuel blends, spark advance settings, and gear ratios.

Once the proper spark plug heat range has been determined, also by a study of the plugs after a "cut clean" run, it is possible to read from the spark plug tips the effects that other changes have on combustion chamber temperatures. Advancing the spark just a bit more, for example, might raise temperatures to an unsafe high.

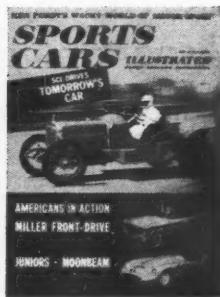
You can easily learn to make some basic deductions about your engine, by studying the accompanying photos and captions that explain some typical indications you might find on your spark plugs. (If you use your car for ordinary driving rather than competition, simply check your plugs after "average" driving. No special run is needed.) As you can see from these pictures, a spark plug check is a simple and effective engine check. That's why it's a good idea to check your plugs at regular intervals.

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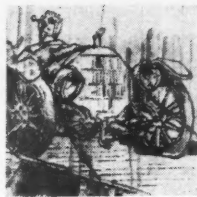
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## WACKY WORLD

from page 31

standing in one of the garages, mouth agape, as a Bugatti owner heated a gallon and a half of castor oil on a portable electric burner he had brought in his tow car. He had a candy thermometer in the reeking stuff, and he peered steadily at it. Just as it rose to the temperature he wanted — 180° F, as I recall it — he snatched the instrument out, grabbed the kettle and turned to me to say, "Do stand aside, please. This oil mustn't cool before I get it into the engine." He had about three feet to cover before reaching the filler-pipe, and I marveled at his fear that the temperature of the oil would decline half a degree before he could decant it.

Alas, all was in vain: the city council forbade the race.

It must have been one of those same types whom I saw, about ten years later, standing outside the Time-Life building in New York. A brand-new MG idled at the curb, and the dashing *pilote*, pulling on a pair of pierced-back chamois driving gloves, was about to board it when one of the staring yokels (an MG would draw a crowd in New York in 1946) asked him what the letters stood for. [Morris Garages.]

"MG?" he drawled, affecting surprise. "Why, 'Mighty Good,' of course."

"Where can you buy one?" the fellow said.

"You can't buy one," he was told. "They're available only as gifts."

I encountered this gambit on other occasions. It was not uncommon. Alarmed at the growing interest of the peasants in their hobby, many sports car owners consistently refused to divulge price or dealer's name. Their effort was in vain. Before long, sighs to make the blood run cold in the veins of a founding member of the Automobile Racing Club of America were to be seen on New York streets: a fellow driving an Invicta while wearing a fedora hat, for example. It was enough to make one reach for the *hara-kiri* knife.

The easiest target for snobbery was of course the Detroit automobile, and I contributed my share, and then some, to that movement. Detroit had it coming, though, in those years. The 1949 family sedans, for example, were not very good automobiles, and those of us who had access to the public prints denounced the men who made them in terms that might perhaps have been better reserved for wife-beaters and poor-box looters. Whether our strictures had anything to do with it I refuse to say, but Detroit automobiles *did* change. In 1949 anyone who could drive a little 54-horsepower MG with fair enterprise could run away and hide from a big Buick. Today, unless you're driving something very good indeed, you are best advised not to make faces even at a butcher's boy driving a Ford panel truck. He may very well blow you off — half a side of beef and fifty pounds of sausage in the back end notwithstanding. And if you are con-

vincingly to rebuke the owner of a Chevrolet Corvette, you had best be mounted on an imported *bolide* in the \$10,000-and-up category: say a Mercedes-Benz 300SL or a Ferrari America. Even so, you may not make it.

Yes, the time to sneer at Detroit is not now, and one of the surest marks of a new boy is a snide, "Oh, well, a Detroit car may go, but it won't handle, you know. You'll kill yourself in a bend with it." Not many of us drive well enough to take, say, a Plymouth Fury to the point where it will break loose in a gentle bend. The present American cars handle, all right.

Most of the attitudes that comprise the sports-car *mystique* were imported from Britain. One of them has it that the owner of an open car must never, never put the top up in anything short of a blizzard or a full gale. I knew one such type who gave his wife two black eyes in observance of this convention. It wasn't that he struck her. He just drove two hundred and fifty miles on a cold autumn day with the top down and the windshield folded flat. The wind-buffeting blacked her eyes — or so he told me with much amusement. She was a long-suffering girl. It was her husband's custom, of a Sunday, to polish his car. It glistened like cut glass when he began, but there were always little things to do, like running melted wax under the rubber strips on the running board to guard against corrosion. His wife's assigned task was to polish the engine, using a small cork dipped in a mixture of metal-polish and abrasive, applying it with a nicely controlled twist of the wrist. It didn't usually take her more than four hours to do the whole engine.

Indeed, there were some odd types in The Sport. I have seen a man mumble and flush when it was pointed out to him that he had wrongly placed his left leg in entering a vintage racing car. Poor fellow, he had thought the idea was to squirm into the narrow seat in whatever way was effective, when what he had done was equivalent to mounting a horse on the off-side. A man of genuine *sang-froid* would have carried it off, saying something like, "That's all very well for the 3½-liter, old boy, but *this* is a four-liter."

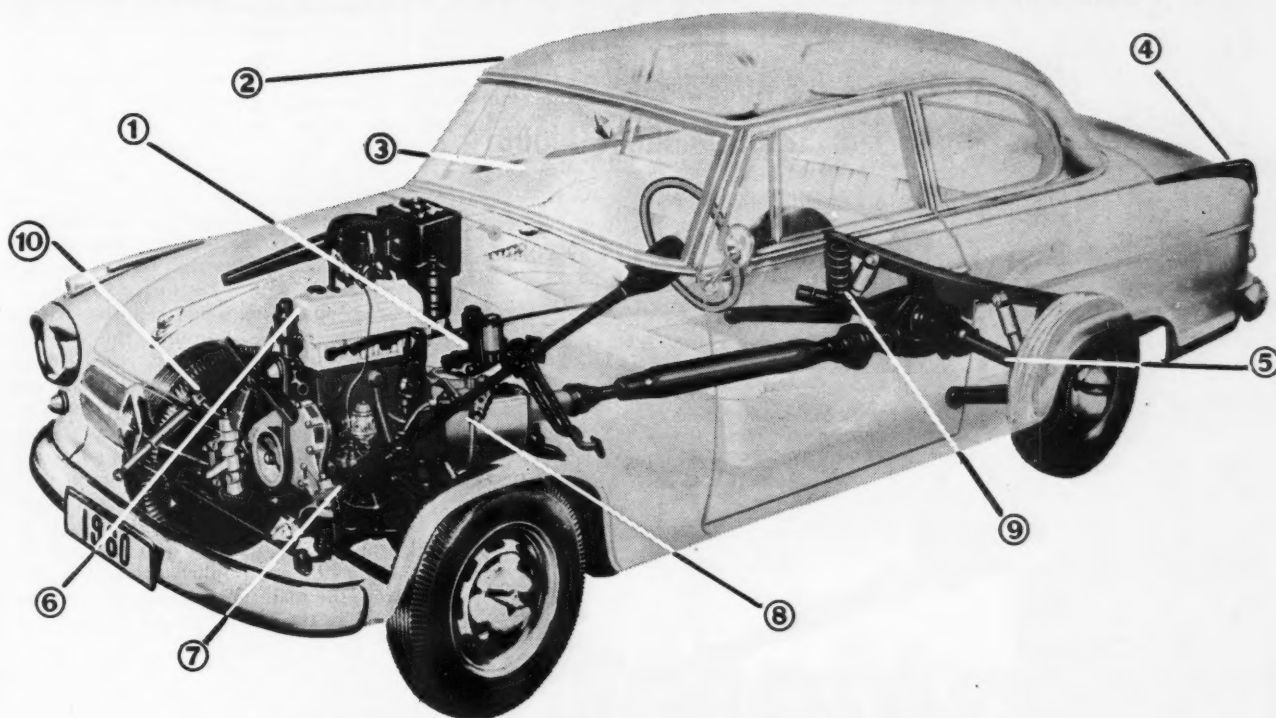
I remember seeing this ploy effectively implemented by an Englishman who came into a filling station driving a friend's Alfa Romeo. It was a racing model, and most Alfa racing types had the accelerator mounted between the clutch and brake pedals instead of to one side. The car came into the station very fast and, just when it should have braked, the engine howled and it leaped forward. The driver managed, just, to stop it six inches short of a brick wall. As he jumped out he said to the owner, standing by, white and shaking, "You ought to have a look at that throttle return-spring, old boy." It was perfectly obvious that he had stepped on the gas thinking it was the brake pedal, but no one accused him of the *gaffe*.

As amusing as anything else in the wacky world of motor sport, if one can maintain detachment, is the convention that everyone — well, very nearly everyone — who owns a sports car and is a member of an accepted club is an altogether splendid fellow. I have heard some notable nonsense

(Continued on page 86)



# IF AUTOMOBILES WERE TRANSPARENT...

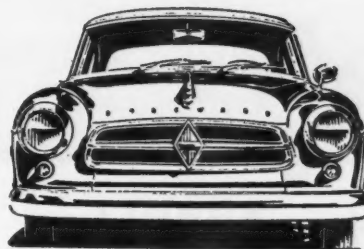


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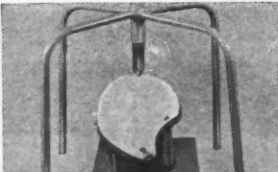
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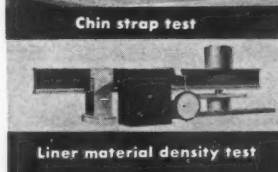
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spouted to state the point. It is a fallacy, of course, common to all special-interest groups. I remember how hurt were the members of a crossbow club when one of the members axed his father. "But he was one of us," they said. "He was a Guildsman." The phenomenon doesn't appear with as much strength in *The Sport* now as it did, say, ten years ago, when sports car people felt themselves a minority under siege by the barbarians, and needed to reassure each other that there were no fifth columnists within the fort. So-and-so might be a louse who would sell you a car that had been twice around the world, the hard way, and swear that the 5,469 miles on the odometer represented, to his certain knowledge, every foot it had run since it left the factory, but as long as the Better Business Bureau didn't cite him as a thief and a monster, no one else would mention his little failings. Such and such might be an anti-Semite and a thing that would steal money from its own mother, but as long as he was publicly opposed to Detroit Iron, the man-eating shark, and Professionalism in the Club, he'd get along — and the one I'm thinking of did.

Competition drivers of this nice-nelly persuasion could be seen on the circuits saluting each other like knights in tourney, and anyone who really went in and disputed a corner soon learned, by noting the coolness with which he was afterward received, that he had done something Horrid. I heard one such told that he should not, after all, old boy, act like a dirt-track driver. (It was widely held at this time, and indeed right up to July, 1959, that track drivers, and track cars, were unworthy of mention in the same breath with pukka sports or Grand Prix cars and the chauffeurs thereof. But in the month cited, Rodger Ward, an Indianapolis winner who has driven on everything but slate roofs, ran an Offenhauser midget against a field of quite good sports cars and one *monoposto* G.P., at Lime Rock, and beat them all two tries out of three. The shock was profound, and the rafters rang with it for months.)

For a long time the attitude toward professionalism of the Sports Car Club of America, the biggest in the country, resembled that of the lawn-tennis czars. If a race promoter said, out of the corner of his mouth, that he'd give you fifty dollars toward replacing the tires you'd wear down in his event, and you got caught taking it, you could be sure that you'd have your club pin ripped off and your steering wheel broken over your head. Meanwhile, there were drivers who knew not harassment, but were heaped with honors, who were making very good salaries for driving sports cars and who had every appurtenance of professionalism known to locomotive engineers except membership in a union. Everyone knew who they were, but it wasn't considered polite to say anything about it. They were nice fellows for the most part and the men who hired them were nice fellows for the most part. It was hard to think of them as doing anything wrong, since the anti-professionalism rule was so obviously idiotic. Presently, the SCCA allows limited professionalism.

An offense which might be called Dis-



respect for the Machinery was also frowned upon, and still is by new boys. I knew a driver whose habitually contemptuous term for his own or others' cars contributed to his unpopularity. He called them "lumps," and he was never seen to roll his eyeballs while comparing an Italian supercharger housing with sculpture of Praxiteles' time. This earned him black marks, and he never did achieve entry into the inner circle, granted he offended the ruling powers in other ways. He was an amusing man, intelligent, a superior driver in the early days and a kindly fellow when the mood was on him, but he had no more control over his temper than he had over the tide levels in the Bay of Fundy. He liked to say what he thought at the instant it occurred to him and his vocabulary was rich in four-letter words and novel permutations of them. Portago's contempt for Fine Machinery was held against him by some, and I remember the shock with which someone told of having heard Phil Walters asked what kind of car he would like best for a long trip. Walters, an ex-midjet chauffeur, drove on the Briggs Cunningham team and he was for years probably the best road-circuit driver in America. His starry-eyed questioners, expecting that he would cite some exotic, fussy, hard-sprung, gear-howling European model, were nonplussed when he said, "An air-conditioned Cadillac, what else?"

Walters, who isn't active any more, was in my view the most rewarding American driver to watch. He had all the technical equipment in abundance, but so had others; Walters had more than that. He was incredibly smooth, easy, unruffled. He looked mildly about him with an air of bland composure, but he was brutally competitive. His strong sense of humor often showed through his driving. Once at Watkins Glen he came down the straight past the pits behind a driver notorious for his disinclination to go really fast. The man was making elaborate signs in explanation of the various mechanical faults he claimed were preventing his car from running properly, signs ostensibly to his pit crew but actually for the benefit of the crowd. Just before he pulled over and blasted past, Walters made a sign too: he held up the little finger of his right hand. I remember a hot day on another course when he came through a rough S-bend which other drivers were treating with great respect. He was driving with his left hand and holding a Coke to his lips with his right. It would have been bravado in someone else; in Walters it meant that he was thirsty.

It was interesting to watch Walters with Bill Frick beside one. Frick, a superior mechanic and a good driver in his own right until an accident severed a muscle in one of his arms, could predict Walter's every move. Together they had campaigned midgets and stock cars for years when Walters was known as "Ted Tappet" and they made so formidable a team that promoters used to pay them off for first place before a race now and again, on condition they'd take second or third; it was monotonous for the customers to see Tappet win all the time.

Frick is a unique personality. He is a free spirit. "Who needs you?" is a phrase

(Continued on page 88)

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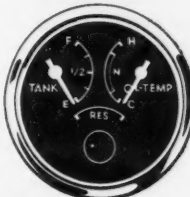


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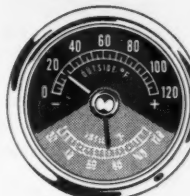
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(Continued from page 87)

that comes readily to his lips. He combines a short temper and a low boiling point with consideration and remarkable politesse, a rare combination. He is a gifted mechanic, I suppose one of the six best in the country. I once took him a Grand Prix Bugatti engine in a basket and, although he loathed that particular type of engine, he set it up so perfectly that the car broke a course record for its class *five years later*, without another mechanic having laid a wrench on it since the day it had left Frick's shop in Rockville Centre.

I can't go on indefinitely about Frick just because I am fond of him, and anyway the two best Frick stories I know are unprintable; one because it involves the construction of a mechanical device so fiendish in purpose that it must be kept from the general public, and the other because it's just unprintable, although Willy's role in the incident, I hasten to say, was above impeachment. I will, however, in closing, state Frick's Law: All You Need Is the Money.

I remember so many amusing things from the wacky world of motor sport, and I would like to get them all down — but it would take two hundred pages — and forget them and stop writing about automobiles. The walls of my house sag under the weight of the literature. I no longer subscribe to twenty motoring magazines a month, but even so they accumulate, and last year I threw away twelve hundred pounds of back issues. I would like to burn my clipping files, and try to forget why the bumpers of the only automobile ever represented on a coin — a Chinese *yuan* of Kweichow Province — are wrapped in bur-lap. It is not necessary to know that, or to know that it was a Viennese janitor who cranked the engine of Siegfried Marcus' car when it made its historic run in 1865, or that the first automobile to do sixty miles an hour was an electric called "*La Jamais Contente*."

I remember the look on the face of a man who had put an automatic transmission into a Cadillac-Allard and had had it select reverse gear, quite by itself, while he was motoring toward the racecourse at 40 miles an hour to try it out at midnight. He leaned against the car after it had been hauled back on the road and tried not to think of his fate had the malfunction occurred ten minutes later, at 120 miles an hour. And the time a wild-eyed driver, two hundred pounds and berserk, held another driver against a garage wall by the throat, screaming that he would kill him, while his friend, a much smaller man, stroked the back of his head as he would a puppy's and said over and over, "Now, now, Pete, now, now," until he finally let go and went away, still white with rage. And the night at Sebring when Piero Taruffi, who must have been fifty then, pushed a stalled Lancia a terrible distance over the circuit and into the pits — at a fast dogtrot. The effort should have killed him, but they picked him up off the cement and in a little while he was talking.

Later that night, or rather early next morning, I got into a big argument with someone who said that Taruffi no doubt had a death-wish. If there is anybody on this planet who doesn't know what a

death-wish is, Piero Taruffi is the man. I do not want to be accused of a lack of discrimination that would lead me to declare all race-drivers nice fellows, because they are not, there are some rare specimens of louse in this trade, as in any other, but I will defend against all comers the proposition that Piero Taruffi is a gentleman, kind, considerate and good; an intelligent theoretician and technician, a great driver, and a lover of life in its every aspect who intends to keep himself in one healthy piece for just as long as it's possible. I know the so-called death-wish does exist, and I've talked about it with close friends who are psychologists and psychiatrists or otherwise professionally concerned, but I don't think many race-drivers live with it. I do concede that what is known to psychologists as a balanced personality, someone who would score in the high 90's Bernreuter, let us say, would never go motor-racing, but he'd probably not run for the United States Senate, either. I'm afraid that neurotics have largely made our world, and neurotics largely run it. I at least know of only one well-known race-driver who might consciously have wished to die on a circuit — and soon, which is the genuine indicator. He always drove as if he were trying to break up the automobile. He was killed a few years ago and his co-driver has told me that he found the man's insistence on going far faster than conditions warranted to be altogether inexplicable, since he was doing it against judgement, advice and even flat orders to the contrary. This man was very ill, in a way that was dangerous to other people, knew it, and knew that periodically he would go out of control. I think he wanted to die, poor man, rest him, but that is not the classic death-wish, a sub-conscious thing.

I remember another day on the Sebring circuit, in a little French car a friend had been asked to try out. It had a five-speed gearbox and an engine about as big as a 12-volt battery, and my friend sat there, his foot flat on the floor, shifting gears interminably, and shrieking, with every shift, "So, go! So commence, you little son-of-a-bitch!" He was trying to catch a two-seater sports car ahead of us, an impossible proposition, but he managed it, by refusing to brake for a corner until disaster was staring us dead in the eye.

I remember standing in a cold rain in a Norwalk freight yard and staring in sick fascination at the rotting wreck of a T-head Mercer Raceabout I had bought sight-unseen and listening incredulously as Connie Lofink, a specialist mechanic on old cars, said, "I think it's the best one I ever saw in my life." We restored it completely and I enjoyed it hugely before I sold it, like an idiot, and to the wrong man, at that.

I spent a lot of time with Connie. He had restored many cars for Jimmy Melton. He could do anything but he was a Rolls-Royce and Packard specialist. He was in his 50's then, I should think, physically very strong, a brute in some ways, and one of the few really hard men I've known. He disliked doctors and dentists and one hot summer afternoon I saw him jerk open a work-bench drawer, select a greasy pair of pliers. Then, with the aid of a little mirror, he jerked an abscessed

tooth out of his jaw, threw it away and went back to work. (I'd like to be able to report that he got away with it, but he didn't. Two days later he had a roaring infection, and went to the dentist, virtually at gun-point.)

One night some good mechanics who had been trying to straighten out the carburetion on a 35 Bugatti so that I could drive it to a motor show in New York next day, gave up and suggested I call Connie. He lived five or six miles away. In due time he arrived in his Plymouth coupe. It was about a 1934, and if all '34 Plymouths had run that quietly the model would have been a legend. He grunted contemptuously at his assembled colleagues, lowered himself to a dolly and rolled under the Bugatti to view the carburetor, which hung from the bottom of the blower. He was smoking a cigar. Connie was always smoking a cigar, a brand that cost, when inflation came along, ten cents a copy. One Christmas I gave him a small box of one-dollar Upmanns. He smoked half of one while I was in the house that night, but he obviously didn't think much of it and I never saw him light any of the others. He asked somebody to crank the Bugatti, and he lay there, his face practically in the carburetor, as close as a man could get to the horrible din of a roller-bearing race-car turning 2500. Clouds of blue smoke rolled up from his cigar, and as he fiddled with the carburetor, a stream of gasoline ran down his wrist to drip into a sizeable puddle of the stuff already on the floor, souvenir of a previously-disconnected fuel line. He reached a sausage-like finger to the throttle-linkage and blipped the engine up to 5500. The gasoline gushed from the carburetor in such volume that it must have been coming right through the bronze wall, by osmosis. Some of it ran down his chin. Connie grunted and puffed furiously on his cigar. A couple of idle bystanders drifted slowly away and disappeared into the night. A friend of mine yawned in elaborate simulation of boredom, and faded quickly out of sight. Half an inch of ash fell off Connie's cigar into the gasoline puddle. A visiting mechanic sloped off to the men's room. The owner of the shop, and his head mechanic, victims of their own senses of honor, stayed where they were, leaning against a bench a few feet away. I was squatting on the floor next to Connie. I wanted badly to be elsewhere, but I couldn't go. It was my car, and I had called him. Finally I laughed hollowly and said, "Don't burn up my automobile with your damned cigar." He rolled the butt from one side of his mouth to the other, stoked the end cherry-red with a good big drag and said, "Them Frenchmen never did know how to make a good carburetor. You had any sense" — puff, puff, whuff — "you'd take this thing off and put a big Stromberg on it. It'll never go with this one."

It did, though. Five minutes later Connie swam out from under and the engine ran steadily and well at everything from 800 to 5500. He wiped his hands on a rag and fired up a new cigar. He stood around for a minute or two. He shrugged his heavy shoulders. A couple of people said good-night to him. He didn't answer. His

(Continued on page 95)



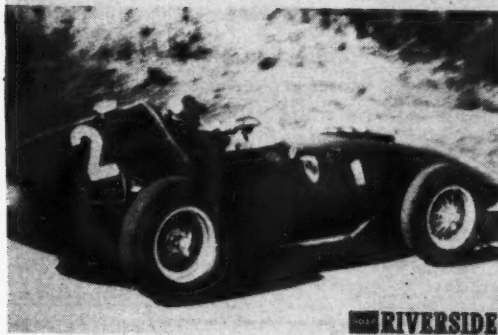
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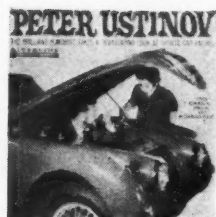
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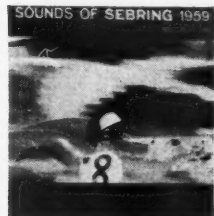
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## BIG PIG

from page 41

never heard of Big Dino Parenti — in fact, their membership was drawn exclusively from the top third of Princeton '09. Finally Joe got through to the police station, and a cooperative desk sergeant informed him that his uncle was in Las Vegas. "Probably to admire the sunrise over the desert — or maybe steal a couple moon rockets," said the kindly sergeant. Joe hung up in a huff, but a sharp jab in the ribs from the patron's umbrella started a new series of calls to Vegas.

Finally Dino was on the phone. He was glad to hear from his nephew. How was the kid? How was the cars? How was the senioritas? He should go sightseeing in Panatella. It was a great place. Spent many a happy day there back in prohibition days. Only Joe should not gamble — except if he found a floating game. But never in a casino. Uncle Dino should know — his friends ran them all.

Joe took a deep breath and got a word in edgewise. The race. Or rather no race unless Fandango was rescued. Strings to pull in high places. The 12th Committee of the Young Revolutionaries to be cajoled, to be bribed — maybe even to be leaned on. And only twelve hours to get Fandango back and into the too-tight seat of the lead Ferrari.

Dino blew about three dollars worth of rich Havana smoke into the receiver before answering. This indicated deep thought. Then he said, "OK, kid. Sit tight. You'll hear from me." The receiver clicked and Joe staggered out into the blazing Panatella sun, thinking of the cool beauty of the Las Vegas sunrises, and the soft pink lights that covered the dice tables and the chorus lines — the twin poles of Uncle Dino's secure world.

Signor Pignatelli liked his team to be one happy family. They slept together, ate together, and scratched together.

The patron had found a suitable headquarters for the Gran Premio — a suite of rooms over a pool hall, where pornographic movies were shown every night at midnight and 2 a.m. A good exterminator would have gone mad with the challenge, but even the Sicilian mechanics didn't complain of the cold.

As Joe listened to the applause for the late show downstairs, he was suddenly aware of a silent figure next to his bed.

He was a short man, but splendidly clothed in the height of Panatella fashion — a bright strawberry suit, with lapels reaching beyond the shoulders, peach-colored shoes complemented by a broad-brimmed fedora in a lighter shade of peach. The handpainted necktie could only have been imported from Miami, and pictured Leda and the Swan just after the action had cooled. As if dazzled by his own grandeur, the little man wore smoked glasses with side-blinders, even in the dark room. Joe tried out his best Spanish, asking the little man what he wanted.

"Sorry, Jack," the little guy answered in

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the exotic accent of a Bowery pool hall, "I don't speak that lingo so good."

Joe tried English, and his companion brightened considerably. "I'm Izzie. The other guy says you want a job done."

"What job? What guy?"

"The other guy. The big guy — from the 114th Street Bocce Club."

"Oh. You mean Uncle Di. . ."

"Shh. No names. Understand? No names. Now, what's eatin' you?"

Joe told him about the race, and about Fandango. It was all rather confusing. In the first place Izzie didn't seem to know there was a race on. In the second, he kept asking "which nag is fixed to win?" Finally Joe convinced him that it wasn't a horse race that needed fixing — and that he had to find Fandango and get him to the starting line by ten the next morning. When Joe explained that the World Champion was being held by the 12th Committee of Young Revolutionaries, the little man whipped off his sunglasses and danced a little jig.

"It's a cinch" said Izzie. "Come on, get up. You can find him — easy. I'll tell you on the way."

As Izzie weaved through the streets in his yellow Cadillac convertible, (he was forced to drive a nondescript car, owing to his profession) he explained why the 12th Committee should be easy to find.

All the members of the first through 11th committees were either in Miami, in jail, or had grown long, curly beards to demonstrate their complete unity with the liberator of the people, Dr. Perfecto Castrato. Izzie figured there couldn't be more than thirty people left on the whole Island of Panatella who didn't have beards, and most of these would be women. Moustaches, of course, didn't count. The balance of the beardless males must be members of the 12th Committee.

And where would a number of beardless men meet? Why, in a tourist trap, where a beard might only mean you were a beatnik poet. A tourist trap, like where they were headed . . . the Panatella Hilton.

Joe waited at the bar, toying with a long glass of rum embellished with pineapple and passion fruit, while Izzie made discreet inquiries in the lobby and gambling casino of the hotel. He was back in a minute, standing next to Joe, and whispering out of the side of his mouth.

"There's a big poker game up in Suite 412. All guys without beards — but not tourists. Dig?"

Izzie slipped a heavy object into Joe's pocket. "You might need this, in case it gets cold." Then he was gone.

Joe took the elevator to the fourth floor. The door of Suite 412 was opened by a beardless man with a scar running the length of his ugly face. He smiled unpleasantly when Joe asked about the poker game, and started to close the door.

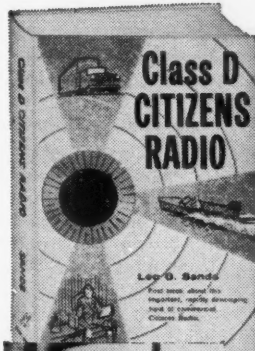
Joe thoughtfully put his foot in the opening and reached for the weight in his pocket. He was beginning to think that Izzie really hadn't meant an electric heater — even the Hilton's wonderful air-conditioning didn't call for that — and he wondered what the object could be. Scarface apparently knew what it was, and beat a hasty retreat down the corridor.

The sitting room of Suite 412 was oc-

(Continued on page 92)

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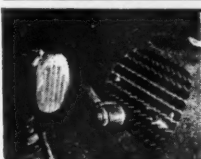
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(Continued from page 91)

cupied by two more beardless men. Upon seeing the heater in Joe's hand (it was a heater, but more of Uncle Dino's type), they rose up with eyes flashing, revolutionary war cries on their lips.

After each had delivered a rapid but rousing version of "Viva the 12th Committee of Young Revolutionaries, Viva Panatella Libre run by us, down with Perfecto Castrato that lousy traitor and tool of American imperialists", they left the room hurriedly, through the window, and into the swimming pool four stories below.

Joe kicked open the locked door to the bedroom. As it swung open, the light flashed on a bald head in the bed. Joe hesitated. The man sat up in bed. No beard! The bed lamp switched on. On the table was a light-brown crash helmet. Joe had found the Champion of the World.

And that is why at seven minutes of ten on the morning of the Gran Premio de Cigaro, Julio Maria Fandango raced across the lobby of the Panatella Hilton in a suit of silk pajamas (borrowed), handmade Italian alligator shoes (his own), clutching his helmet in his hand.

They dashed down the steps and into the yellow Cadillac convertible waiting on the driveway. The engine burst into life and Fandango slammed the car into gear. With a whoosh, the Caddie flew up the steps backwards, and crashed through the plate glass doors into the lobby. After Joe had explained the intricacies of Hydramatic drive, they drove down the steps more carefully, and sped towards the Avenida de Independencia.

The crowds along the way cheered as they recognized Fandango, and after not more than a few pedestrian fatalities they reached the starting grid. Quickly Fandango squeezed into the lead Ferrari, tucking in pajama shirt-tails as he went. He had time to flash a grateful smile to Joe in the Pignatelli back in the fifth row, and the starter's flag dropped.

They were off! The blast of exhausts, the whine of valves crashing at high revs, the squeal of tires made Joe's heart leap. He put the Pignatelli's right front wheel on the curbstone of the first turn and lead-footed through the corner. He bumped the Pig's snout against the rear end of a Maserati and then powered past the red car. As he flashed past the pits he saw the mechanics waving him on, and caught a glimpse of Signor Pignatelli counting the starting money.

Joe dove into corners, blasted over straights, drifted the fast bends. He wove in and out, passing cars, shunting others aside. The telltale on his rev counter was five hundred over the red line, but still he kept pushing. Suddenly Joe had left them all but Fandango. He slid out of the 180-degree at the end of the Avenida and found himself side-by-side with the Champion. The two cars raced down the straight, hub-caps clicking. This was Joe's day — and the big Pig's noblest race!

Joe stole a look at Fandango. Except for a golden tassel flapping out behind his pajama tops, the Champion looked like he was out for a Sunday drive. Joe pressed his right foot down harder and listened to the valves crash. The water temperature gauge was up to the top peg, the rev

counter likewise. The two cars blurred down the straight one inch apart, both flat out. Something had to give.

And then something gave. The road ahead rose up like a fountain — first smoke, then concrete, then rocks, then mud. It looked like a land mine had exploded. Joe braked hard, and jammed the shift lever into third. A gaping hole appeared in front of him, and he twisted the wheel to the right. The Pig spun, shredding tires. Something hard hit the side of the car, and Joe reached for the ignition switch.

A crowd of little men in white homespun lifted him out of the car and poured rum down his throat. On the other side of the road, they got Fandango out of the wrecked Ferrari and applied the same treatment. Both drivers regained consciousness in time to be introduced to the man who had blown up the Gran Premio de Cigaro — the new liberator of the people, Dr. Christoforo Cigarillo del Ropo.

Del Ropo explained what had happened while Joe warded off bottle after bottle of medicinally-guaranteed Panatella rum. It seemed that the farmers, coming down from the hills to the city to celebrate the third month of the revolution, were startled by the unfamiliar sounds of the race.

Politics being what they are in Panatella, the roar of 17 highly-stressed engines signified only one thing to the farmers — another revolution!

To a man, they whipped out their machetes, fluffed up their beards and swarmed down into the city with blood-thirsty yells.

On the way to the race course they rushed into the street where Dr. Del Ropo pursued his duties as third deputy chief of the Commission of National Sanitation. He dropped his broom and shovel and ran from the mob. But they caught up. Whether it was his splendid white uniform or just because he was now leading the mob, somebody shoved a flag into his hand. Four bearded generals saluted him, and an admiral gave him his gold sword. By the time they reached the Avenida de Independencia, Dr. Christoforo Cigarillo del Ropo was proclaimed El Jefe, Liberator of the People.

When they saw the race cars, the farmers were a bit disappointed. While the noise was gratifying, there wasn't a tank in sight — and worse, no grenade or artillery explosions.

Del Ropo, aware of the responsibility of his new office, rose to the occasion. He was well acquainted with every street and road in Panatella, having cleaned and polished each one countless times. He knew that a land mine had been planted on the Avenida de Independencia to repel Imperialist American invasions.

He waited until the Pig and the Ferrari roared down the straight neck-and-neck. Then he threw the switch.

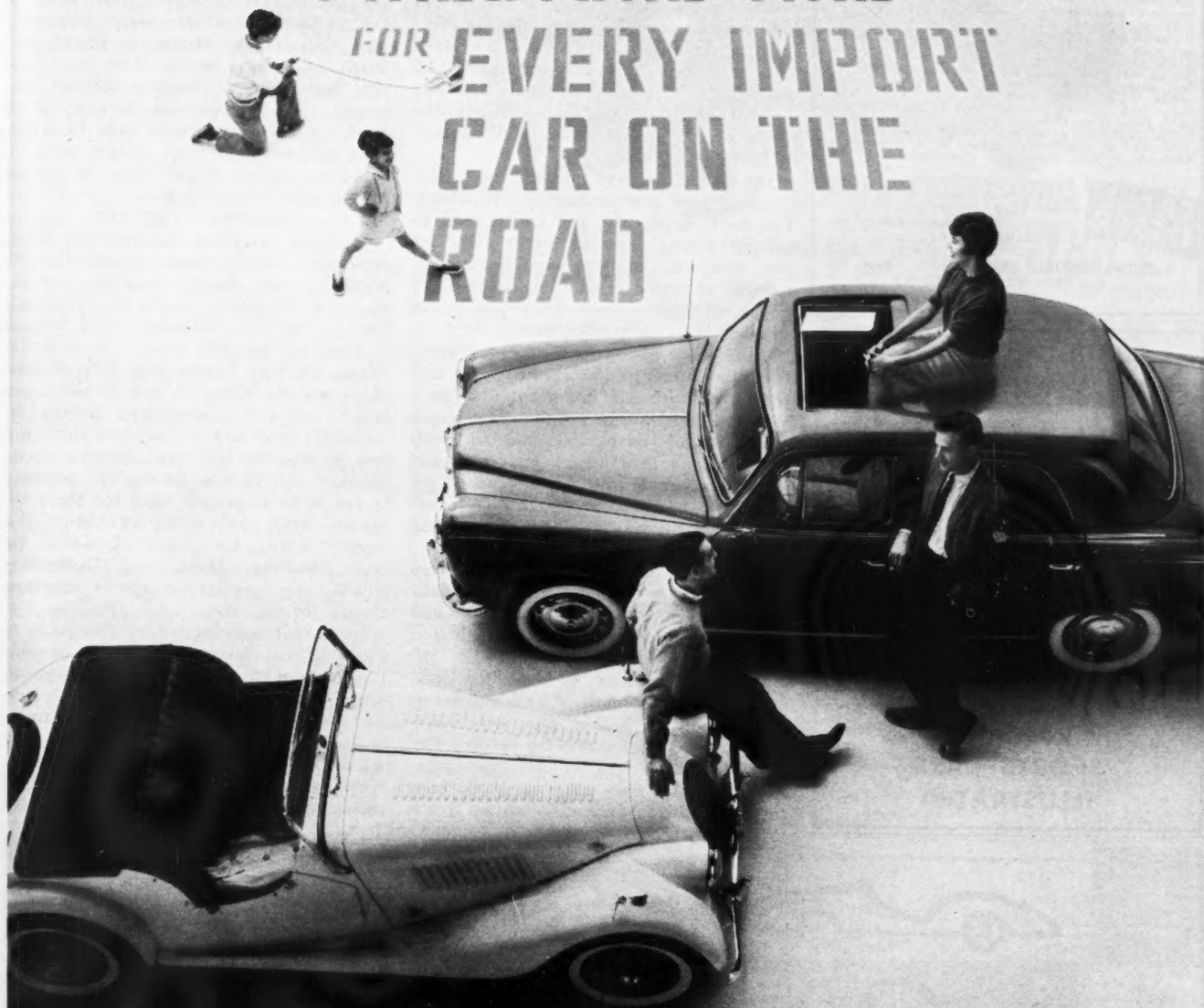
The magnificence of the explosion guaranteed him at least three re-elections. It killed 17 farmers and all the race organizers. And it brought the Gran Premio de Cigaro to a thrilling conclusion.

Joe hadn't won. In fact, nobody won. But it was indeed the big Pig's noblest race.

—RGL



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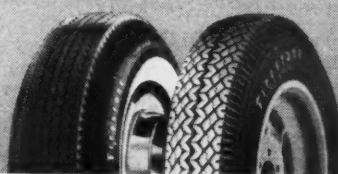
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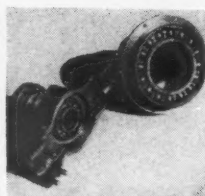
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## TIME MACHINE

from page 52

running gear the springs were not nickel plated by the factory because this would have reduced their inherent damping effect significantly. Instead, they were gun-blued and lubricated with graphite grease. A blued finish was used on many parts of early Millers, including the radiator grilles whose every wire was bent and soldered by hand.

The shock absorbers normally used were friction-type, over-the-counter Hartfords. The front shocks for the f.w.d.'s had to have extra-long arms, so Miller made his own complete units, including friction material of maple wood. The Miller-built shocks, of course, were sheer jewelry in comparison to the stock items.

Miller made his own steering machinery. The gears were of the classic worm and wheel type with one important difference. While the standard worm and wheel unit would develop irreparable backlash with wear, Miller's gear wheel was split and bolted together. Minute adjustments of the gear-wheel halves relative to each other compensate for any slack in the system.

## MODEST BRAKING

Miller had little incentive to concern himself deeply with brake design. He built machines to operate in high gear only and within an rpm range that was high and narrow: 2000 rpm at the outside. His brakes were intended to serve for occasional pit stops, no more. Within this frame of reference his brakes were very good. They were mechanical-servo units with strong bronze backing brackets and light-alloy shoes; they were cable operated. They had great friction area—285 square inches

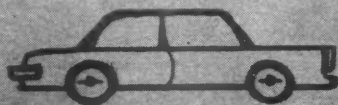
in the case of SCI Special #18. When they failed it was because of the lightness of their drums relative to work they had not been designed to do. The 13 x 2 1/16-inch rear drums weigh only 8 3/4 pounds in spite of their fins and the 10 x 3 5/16 front drums weigh only 8 pounds. Naturally, these oval-track-oriented drums would expand rapidly during road racing use. The linings were of hard, molded material impregnated with brass wire and those in the ex-Duray machines show zero wear after breaking the Monza lap record, plus much oval-track racing. The front and rear brakes operate independently of each other: the foot-operated service brakes work on the rear wheels and the hand-lever-operated emergency brakes work on the front wheels, which have 55 percent of the total friction area.

## BASICALLY CORRECT

With the exception of front-wheel drive, American racing chassis of the Roaring Twenties were directly derivative of domestic passenger car practice. This sufficed so well for oval-track racing that, as late as the mid-1950's, cars raced at Indianapolis with chassis that differed from the rear-drive Miller 91 only in wheel rim width and tire cross-section. Except for tubular frames and torsion bars there still has been little essential change, simply because the chassis suspension geometry is not to be improved upon for oval-track racing. Had road racing existed in this country during the period of greatest design creativity, Miller and Duesenberg would have produced equally excellent chassis for this use.

In further installments of this study of thoroughbred anatomy we will examine the memorable Miller front-drive mechanism, the classic American racing engine, the evolution of centrifugal supercharging and, perhaps, a surprise or two. This is an admittedly nostalgic series but it is filled with practical worth for any student of racing-vehicle design.

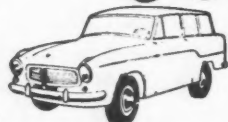
—GB



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(Continued from page 88)

tame Plymouth moved away down the dark road, whirring like a Baker Electric.

I wish he were still with us.

And the night I was sitting in that same Bugatti at 70 or 75 miles an hour and suddenly it came to me that I didn't know where I was or which way the road went or even if I was on a road at all, and I didn't care; the sensation seemed to be that of free flight, and I reached over and shut off the headlights and went on through the darkness for a long time, through what seemed endless tree-shrouded countryside, until the delight changed suddenly into terror. And the quiet pleasures of Le Gourmet on 55th Street in New York when Rene and Maurice Dreyfus had it, and Le Chantclair now, and Bobby Said's incredible menage in Pound Ridge, with the four-people bathtub and the cheetah, big as a great Dane, stalking around the barroom downstairs, muttering to herself and stopping now and then to glare through the window at the puma and the ocelot on the screened porch. Stirling Moss was there for breakfast one Sunday on his way home from Venezuela and we spent a long time trying to decide how many troy ounces of gold were in the trophy he'd won, and how much it was worth in pounds sterling. A good deal: it was uncomfortable to hold in one hand. A huge parrot, hanging upside down in the cage built into the living-room wall glared at us with his button-bright eye and cackled, "Where's Charley? Where's Charley?" No one was supposed to know where Stirling was, but Denise McCluggage, on the HERALD-TRIBUNE then, called up and asked for him. It was the first time Stirling had talked with Denise and when he came away from the phone he said, "My word, the girl does know an astonishing amount about motor-racing, doesn't she?"

That was a bright and sunny morning and we sat on the high porch and looked at the lake with its tiny island. On the lawn, the cheetah, tethered, calculated the length of its leash and suddenly uncoiled in a savage rush for a snooping dog. Alas, she was a foot short and could only glare after him as he howled away. Louise King was there that morning. Bobby would introduce her to Peter Collins some time later, in Miami. Charlene Said was there, and Hans Tanner and Tony Morewood. Hans is in Italy as I write this, Tony Morewood and Louise Collins in England, Charlene in New York, Bobby in Siam, Stirling in Nassau. There are no Ferraris or Maseratis or Porsches in the garage and the fenced acre where the cats used to disappear behind rocks no bigger than their heads, to rush in mock savagery at Charlene, come to exercise them, is empty. The cheetah, I suppose, is dead.

—KWP

The above lighted-hearted look at motoring types is a chapter from Ken Purdy's latest book, *THE WONDERFUL WORLD OF THE AUTOMOBILE*, published by the Thomas Y. Crowell Company. For the modest sum of \$4.95 you can be conducted through the world of automobile enthusiasts by one of the better writers on the subject.

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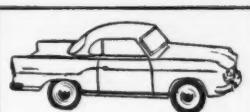
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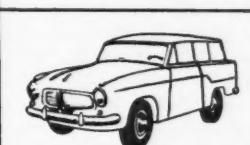
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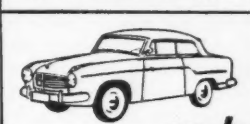
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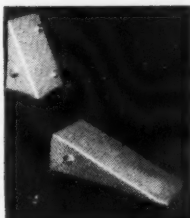
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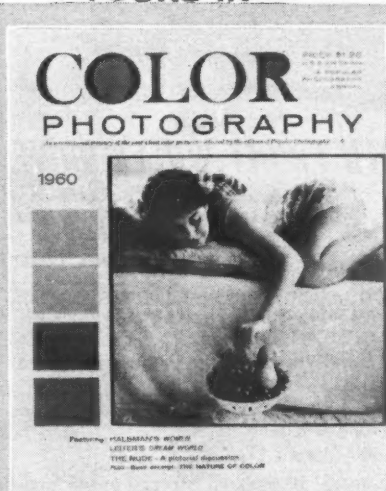
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**ROAD RESEARCH  
REPORT  
CORVAIR**

from page 62

closer to the driver's chest than other cars. Light steering is one of the Corvair's outstanding driving characteristics, yet the reasoning given for such wheel positioning is that it lets you exert great torque on the wheel rim.

Visibility is very good all around, though the curved windshield has a trace of distortion. The pillars are very slim, but have a little dogleg just as they reach the shoulder line. The windshield wipers are electric and operate in parallel with overlapping paths. They both park against the bottom of the windshield, but more effort should have been spent to see that the left one swept closer to the windshield post.

All door windows wind down flush with the sills with  $3\frac{1}{2}$  to 4 turns of the handle. A distinct break with GM tradition is that doors are locked from the inside by twisting the door handles rather than lifting buttons. You can no longer slam-lock the doors from the outside. The ignition switch is typically Chev, with Lock-Off-On-Start positions and the ability to remove the key when the switch is on, later stopping and restarting the engine without the key. But don't drop your key in the trunk before shutting the self-latching lid. As on many other cars, it opens only with the key.

Though it's chummy, you can indeed get six people into a Corvair without practicing collegiate tricks in a phone booth.

Hip-room is better at 57-plus inches front and rear than the shoulder width, which is only 54. Headroom is reasonable by current standards and rear seat knee-room is always generous at the expense of inadequate adjustment (only  $3\frac{1}{4}$  inches) of the bench-type front seat.

**DASHBOARD LAYOUT**

With a flattened knob on its end, the Powerglide lever is just as pleasant to use as the conventional column-mounted one and much more so than push-buttons. However, it's directly in front of the driver's knee and in the Drive or Low positions it's angled so that it's a lethal scoop aimed at your kneecap.

Crash safety is not a keynote in Chevrolet dashboard layout either. The hood over the instrument cluster usefully prevents the dash lights from shining in the windshield, but symmetry scores over common sense in using an identical shape around the  $14\frac{1}{2} \times 4 \times 6\frac{1}{2}$  deep glove compartment. Its sharply-radiused lip, even when covered with the optional (\$18.30) crash padding, looks much sturdier than necessary. The door to the glove box opens just to the horizontal position, being held by a hinged strut. It is cleverly indented to hold coffee cups or milk shakes at a drive-in. Not as fancy as the walnut veneer folding shelves in a Rolls-Royce or Jaguar, but they're up front where the Corvair owner is more likely to be found.

The firm armrest on the doors, again typically Chevrolet, is set horizontally and rather high, in this case 9 inches above

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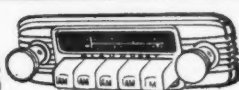


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the seat cushion. It obstructs arm movement during vigorous steering when there are three abreast in front. Doors and seats are upholstered simply. One Chevrolet dealer says he's lost more sales to Falcons on this item alone than anything else. Door panels have been changed once and we suspect they will be again.

Instrumentation is one-up on the VW; there is a fuel gauge as well as a speedometer. The mileage counter records in tenths but cannot be set to zero. There are also two red warning lights, one above the other. One reads "Press-Temp"; it keeps track of the oil. The other reads "Gen-Fan". It lights when the generator stops charging, but it's not a guide as to whether or not the battery is being charged. There can be two reasons for the generator not functioning; one is that it's broken and the other is that the fanbelt is no longer turning it. Flipping fanbelts have been a real problem for the Corvair and one of the first of the kits sent out was to install a larger-flanged idler pulley. This can be identified by a white dot on the pulley.

#### THE KITS

Buyers of a new brand of car become a group, though loosely-knit. Apparently the degree of "in-ness" among Corvair owners depends on how many of the factory service kits have been installed. You walk up to another's car, pop open the engine cover (by squeezing a rubber-protected lever above the license plate). Then peer around, muttering such cryptic remarks as, "See you finally got your exhaust hot-spot kit. I got mine same time they put in the carburetor kit." (All new sets of jets.) Then you straighten up and ask, "Hear about so-and-so and his coupe? He insisted they put in the door lock kit even though he'd never had a bit of trouble. They finally did it and the very next day he got locked in."

#### GASOLINE HEATER

With all the snow-covered Volkswagens in Michigan, Chevrolet engineers weren't slow to recognize that air-cooled engines at the rear of a car did an inferior job of heating the passengers up front. Their answer was not to give up air-cooling or the rear engine but rather to go to the expense of building a combustion heater fed straight from the gasoline tank by the engine's fuel pump. These aren't new; South Wind, a division of Stewart-Warner, has been building them for years, and Volkswagen dealers offer a similar accessory. However, such heaters have never been the sole heating elements in such widely-sold cars and so the Corvair's has come in for special scrutiny.

We were impressed by the very quick warm-up and amused by all the strange sounds the heater makes. It turns itself on and off frequently, being guided by a thermostat in the outlet on the cockpit side of the fan which draws fresh air through the heat exchanger.

Many have complained that the heater seriously cuts gas mileage despite the factory's claim that it consumes at the very most a quart an hour. At sixty mph that represents an extra gallon every 240 miles, or about a 10% cut in mileage. Except in the foulest of weather, it operates only intermittently, reducing this appreciably. In our case, one trip in 20° weather with three in the front seat and none in back

and with the heater on full-bore, we felt that it was only just barely doing its job and were delighted that the weather was no worse. On some cars the gas heater is extremely effective and on others the complaint is made that it's either all on or all off, representing a difficulty in adjustments as on our test car.

In the hot old summertime, things will be different. Instead of sweltering behind a hot, suffering engine, the occupants will enjoy the freshest, coolest air available, with two giant side scoops to blow air on your feet to augment the front door's vent windows. Also, there will be no worries about boiling over on long, mountainous grades.

#### PERFORMANCE

Acceleration hardly bears talking about except to complain about the gear ratios. The four-speed box, which is not generally available even at this writing, would seem a must for any enthusiast. Its first offers a shade more snap off the line and you never get that staggering 84% step coming down from top. (See driving impressions, May, 1960 SCI). The stick-shift synchros and linkage are good as far as they go — only two gears and all the way to the rear, respectively.

The Powerglide car was smoother but its extra torque multiplication does not make up for only two speeds and the fluid coupling's inherent slippage. The acceleration for the Don Allen firm's Daytona entry is a healthy improvement, but for 2.3 liters it still hardly rates as a sports car, although it should be a lot of fun to own and drive.

The stock-engine jobs cruise very pleasantly at 75 mph (about 3800 rpm) and can keep it up all day. At anything over 50 mph on fast two- or three-lane roads, the lack of a good passing gear is painfully frustrating — even dangerous — for the impatient.

Some English cars have gas tanks half the size of the Corvair's and get about twice the mileage, but a range of 250 miles maximum is discouraging in a car which looks intended for traveling as well as commuting. The actual mileage figures themselves are disappointing too (19-23 mpg, with negligible difference between one transmission and the other).

#### INCIDENTALS

SCI drove several automatic transmission Corvairs, admittedly in cool weather and in an early stage of break-in, but found them very susceptible to stalling when the cars were being maneuvered in tight parking spaces and shifted frequently back and forth from reverse to forward. This is an extremely annoying characteristic that seems traceable to carburetion. We checked carefully to make sure the carburetor intake air warming valve was in the "Winter" position, but this was definitely not the cause of the difficulty. There's also a characteristic shudder just as the car moves away from rest with automatic gearbox, that similarly appears to be a carburetion fault. It's difficult to understand why Chevrolet chose two carburetors for this economy-type engine. It would be nice if they were there for performance, and designed accordingly, but that's far from the case, and it's difficult to see why a single centrally-located carb was not the original choice. Perhaps, just as dual-carb kits for

(Continued on page 98)

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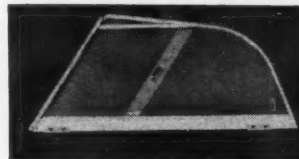
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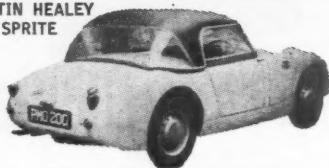
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(Continued from page 97)

the VW- became popular, so will single carburetor adaptations for the Corvair.

One of the options now available from Chevrolet themselves is a fake row of grille bars for the front end. It's unfortunate that garnishment of this type has to be supplied for a rear-engined car, but we are forced to admit, after observing a couple of examples, that this treatment markedly improves the appearance of the front end of this machine. It takes away much of the blunt, bluff appearance and gives it a wider, lower, more refined feeling. If you object to the functional blasphemy, we understand, but we still feel the car looks better that way.

**CONCLUSIONS**

The motoring press must admit that it has been busy selling pigeon-holes, ourselves included. Ever since Detroit started to design some really new cars, they have been collectively tagged "compact" for obvious reasons. Since then, other cars too have been similarly grouped according to wheelbase or overall length. While these dimensions and groupings do have some significance, it is a mistake to jump to the conclusion that all "compact" cars are designed to serve the same needs or appeal to the same market. The three new designs differ from one another far more than their big brothers do. We now have a wide variety of domestic chariots to choose from. Prospective customers have a chance to exercise discernment (and should) to find the one which most suits their individual needs, and not by category alone.

The Corvair's high points are its ride, traction, light steering and styling. Its low points are its internal space, economy and performance as judged against cars of similar price. As is well-known by now, the Falcon is substantially outselling the Corvair. Total sales of Ford are up over last year's figures for the similar period, but the large-car proportion of Ford's sales has dropped from last year's quantities by a marked amount. In contrast, Chevrolet's big-car sales are running right along with those of last year, and Corvair sales represent pure gravy for Chevrolet. It thus seems likely, and this can be borne out by actual observation, that most of the special-interest buyers and converts from imported cars are being recruited by Corvair. It seems equally likely that Falcon customers are people who would have bought big Fords if they had not had a smaller Ford to select. It's certainly true, then, that the Falcon is generally a more suitable family car, and a much more practical approach to basic transportation, but GM's policy in making a very specialized machine out of the Corvair may have been to its ultimate good.

However the actual sales battle goes, we have to thank Chevrolet for having the courage to take a new tack and to give us some actual product differences to choose from in the American automobile market. Few expected the Corvair to become the best-selling American compact. There are many who doubted whether it would last out the year. It may be premature to say that it's here to stay but we certainly hope it is. Variety has been absent too long.

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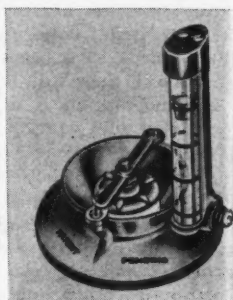
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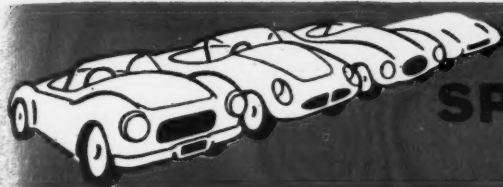
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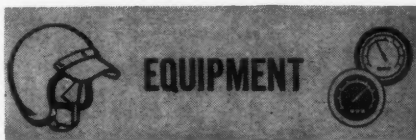
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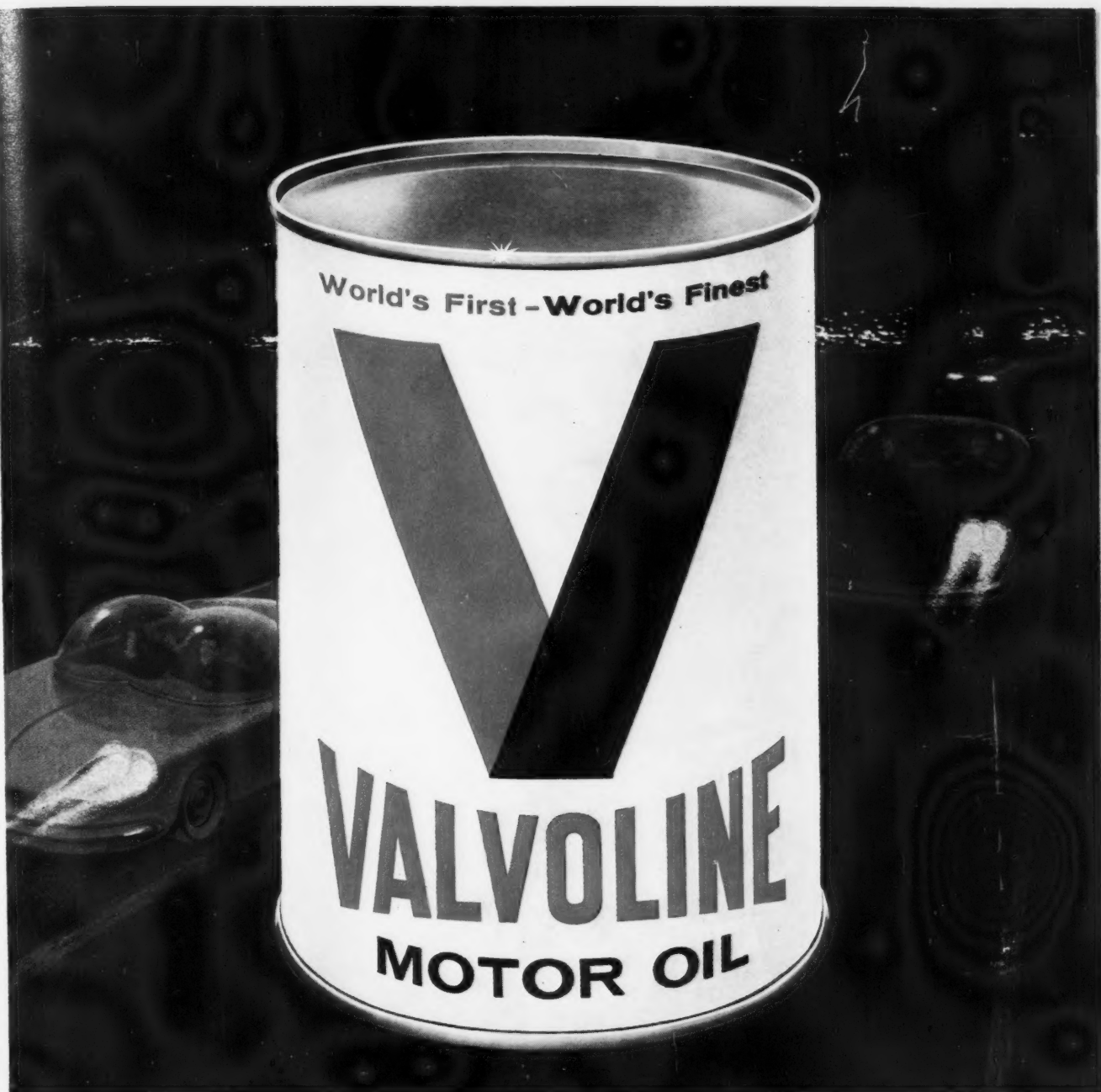
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